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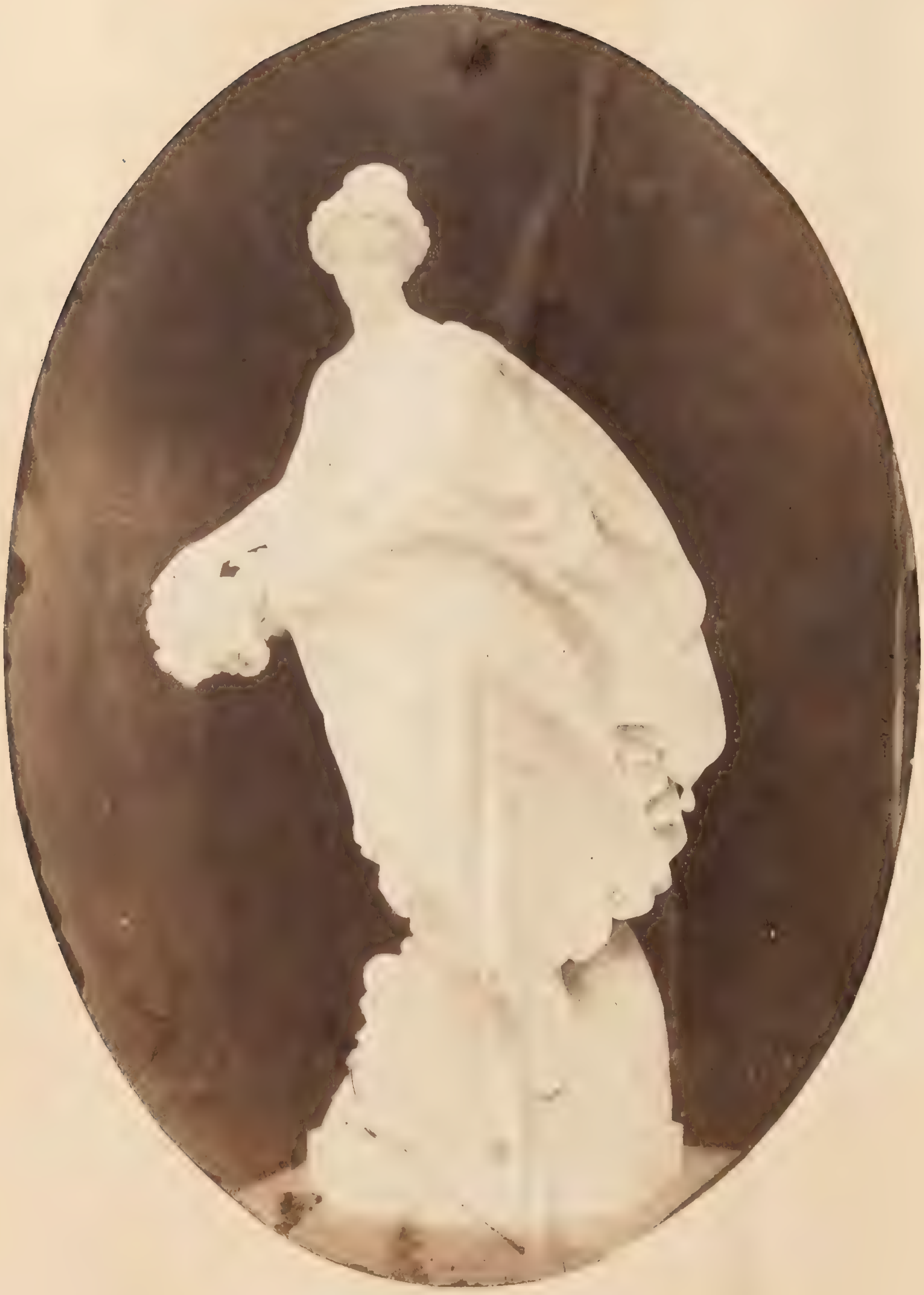

FLORA.

Negative by Whipple & Black, Boston, Mass., from a Statuette in the New York Crystal Palace.

19,765

THE

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THE NEGATIVE AND POSITIVE COLLODION PROCESSES.*

BY D. D. T. DAVIE.

NEGATIVE PROCESS.

SOLUBLE COTTON OR PYROXYLINE.

Nitric acid, s. g. 1·425 8 fl. oz.
Sulph. " " 1·850 10 "

Mix the acids in an earthern or porcelain dish, then immerse the cotton in small quantities at a time, and see that each part of the cotton is well saturated in the acid; then cover the dish and let it stand 10 minutes; then squeeze or press out as much of the acid as possible, and plunge the cotton into a large quantity of cold water, and immediately separate it with glass rods or sticks of wood; then remove it and hold under a running stream of water, and continually press it with the hands for the space of 15 minutes, or until it is entirely freed from acid; then saturate it with alcohol, and separate the cotton for drying, or it may be used for collodion immediately as follows:—

PLAIN COLLODION.

Sulphuric ether, highly concentrated	10 oz.
Alcohol at 95°	5 "
Pyroxyline	90 grs.

SENSITIZED COLLODION.

Nitrate of silver dissolved in water	50 grs.
Iodide of ammonium dissolved in water	40 "

Mix the two solutions and wash the precipitate in several waters; lastly wash in alcohol. Then make the following compound:—

Alcohol at 95°	2 fluid oz.
Iodide of ammonium	100 grains.
Bromide of ammonium	40 "

When dissolved, add the iodide of silver, and agitate the whole for several minutes; then filter through common filtering paper, and add the liquid to 20 ounces plain collodion; agitate the collodion violently for a short time, and add to it as follows:

Fluoride of ammonium	40 drops.
Tincture of iodine	10 "

This iodized collodion may be used in 12 hours, but is much better after standing 3 or 4 days. The tincture of iodine used in the collodion, is simply a saturated solution of alcohol at 95° with iodine.

NITRATE BATH.

Distilled water	54 fluid oz.
Nitrate of Silver	4 oz. by weight.

Dissolve the silver in 8 oz. of the 54 oz. of water.

Then add iodide of ammonium	10 grains.
White sugar or rock candy	120 "

When dissolved add the remainder of the water, and in this condition let the bath stand 12 hours, then filter through common filtering paper, add 30 drops glacial acetic acid, and it is fit for use.

DEVELOPING SOLUTION.

Distilled water	16 ounces.
Sulphate of iron	1 oz.
Alcohol at 95°	2 "
Acetic acid, No. 8	2 "

First dissolve the iron, then add the remaining properties, and when filtered, it is ready for use. It is best not to use the developer too long, it works best when new, and some of the best manipulators are using it but once.

CLEARING SOLUTION.

This is simply any quantity of water saturated with hyposulphite of soda.

RE-DEVELOPING.

The negative is re-developed after it has been cleared up. Make a saturated solution of gallic acid in distilled water 1 oz., then add 30 drops of the following solution :

Distilled water	1 oz.
Nitrate of silver	35 grs.

When this solution is filtered, it may be used as follows:—After the negative has been cleared up and washed, pour on it of the re-developing solution, a quantity sufficient to cover the plate, and keep it on until the required intensity is obtained, then wash with water and dry. In developing and re-developing, the solutions must be kept gently and constantly moving on the plate, for if allowed to stand still, or to remain for any length of time on one portion of the plate more than on the other parts, the plate is liable to streak or spot.

MANIPULATING COLLODION NEGATIVES.

In producing collodion negatives, the first article necessary to be used, is something for holding the plate for the convenience of cleaning it. There are a great variety of implements used for this purpose, but the most simple and best is made as follows:—Take a piece of pine plank, somewhat larger than your largest sized plate, and 1½ inch thick, hollow it out from each end to the centre on a true curve, and cover it with chamois skin, and place the glass upon it; the harder it is pressed, the less liable it is to move. Common French cylinder glass, if perfectly flat, is sufficiently clear for negatives.

CLEANING THE GLASS PLATE.

A great variety of acids and alkalies have been used for rendering the glass plate pure; but a majority of the most successful operators are using nothing but alcohol and rottenstone, which is rubbed over the plate with a patch of cotton flannel, and cleared off with the same. Any number of plates may be cleaned at a time, and placed in the box with the rottenstone on them, to be cleaned off as they are used in the following manner: 1st, remove the rottenstone with a dry patch, then wet a patch with alcohol, and after rubbing it a few times over, apply a dry patch, and continue rubbing and breathing on it until it is perfectly clear.

COATING THE PLATE.

Hold the plate by one corner, between the thumb and forefinger of the left hand, and brush it carefully with a soft brush, blowing the breath on it at the same time, to remove the particles of lint or dust that may have settled upon it; then with the other hand, pour the collodion on the right hand farther corner of the plate, holding it nearly level, until a sufficient quantity has been poured on. Then lower the left hand side, and allow the collodion to move to the farther left hand corner, then pass it down to the thumb, and finally to the near right hand corner; from this corner pass the collodion back into the bottle. We have now come to one of the most difficult points in photography, namely, the proper degree of dryness to the collodio-iodized plate before it is dipped in the silver bath. It must neither be too wet nor too dry. The only test for this, is by touching the edges of the plate with the finger, and when the collodion is set or stiffened like paste, when it adheres to the glass so that a slight touch of the finger will not displace it, and before it is dry, is the proper time to immerse it in the silver bath. If the collodion is dried too much, the plate is not sufficiently sensitive, and if it is not sufficiently dried, the same result will follow. Inasmuch as there cannot any definite time or rule be given for drying the collodion, the operator must rely much upon his own tact and judgment.

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* Copyright secured.

SILVERING THE PLATE.

If the bath is used after standing over night without filtering before dipping the plate, stir the top or surface of the solution with the plate dipper, so as to break the scum, or remove it if there should be any. After the plate is coated, place it on the dipper and plunge it into the solution, and let it remain ten seconds, then churn it up and down moderately several times, then let it remain still from two to three minutes according to the temperature of the room and other circumstances. All of this must be performed in the dark chamber, and the plate when coated must be carefully protected from solar light. Before removing the plate from the bath to the holder, move it up and down in the bath several times for the purpose of removing all scum from the face of it.

TIMING IN THE CAMERA.

The sitting must be adjusted before the plate is coated, and all things must be in readiness for its immediate use after it is silvered. The camera box should be totally dark, and the slide of the plate-holder must be drawn in such a manner as not to admit light upon the plate. The time required in the camera for the negative picture, varies from 3 seconds to 30 seconds, according to the condition of the light. This process must in a measure depend upon the judgment of the operator. If too much time is given, the impression will have a greyish color, if too short it will be too positive.

DEVELOPING THE NEGATIVE.

Developing is an important part in collodion negatives, and the reducing agents used must be selected with great care. Common drugs may answer well the purpose of the quack doctor, but the best is cheapest for the photographer. For developing the negative, never use more solution than just sufficient to cover the plate. Too much iron solution washes the silver from the plate and spoils the effect or strength of the negative; and should the picture fail to come out sufficiently bold or strong, it can always be forced up by re-developing, which must always be done after the negative is cleared up and washed.

FIXING THE NEGATIVE.

The negative should never be allowed to remain in the fixing or clearing solution, any longer than until it is cleared up in all its parts. If allowed to remain for any length of time beyond this, it is reduced to a feeble state, and the middle tints entirely lost. After the negative is cleared up, it may be washed by holding it for some minutes under a running stream of water, but the better way to free it of the hypo. is to immerse it in a large quantity of water for two or three hours, then wash well and stand it on one corner to dry.

VARNISHING NEGATIVES.

It is not best to varnish negatives at all, unless they are required for much use, but if many proofs are to be taken from a single negative, it should be varnished, otherwise the collodion may get scratched or marred. A very thin solution of gum arabic in water, is considered the best coating or varnish for the collodion negative; ¼ oz. of gum arabic to 4 oz. of water, makes a varnish sufficiently strong for this purpose. When the negative is washed, before drying it, flow it with the varnish, and stand the plate on one corner to dry, or it may be dried over the flame of a spirit lamp, but this mode of drying is dangerous unless great care is used, for if the plate is not heated gently and uniformly, it will fall to pieces.

POSITIVE PAPER.

SALTING SOLUTION.

Water	3 pints.
Chloride of ammonia	45 grs.

Dissolve and filter; then take the sheet of paper between the thumb and fore-finger of each hand, and pass it four times through the solution, then suspend it by one corner to dry. It is better not to use the salting solution over and over again as some do.

AMMONIO-NITRATE OF SILVER.

Distilled water	16 oz.
Nitrate of silver	720 grs.

When the silver is dissolved, add aqua ammonia fortis (a brown precipitate ensues), keep adding ammonia until the precipitate is just re-dissolved, then filter through filtering paper, and it is ready for use. It is best to make this solution in small quantities, for it is not safe to keep it very long, especially in warm weather.

TONING BATH.

Water 64 ozs., hyposulphite of soda 6 ozs.; when the hyposulphite is all dissolved, add the chloride of silver obtained from 60 grains nitrate of silver, then add 3 drachms of chloride of lead, and 15 grains chloride of gold. Some prefer working the toning bath without gold; but my opinion is, that we get equally good effects and more durable prints with it.

CHLORIDE OF LEAD.

Chloride of lead is made by dissolving acetate of lead in water, and precipitating with salt; the chloride should be washed in several waters.

POSITIVE PROCESS.

SALTING POSITIVE PAPER.

This operation is very simple, yet it must be performed with great care. Before passing the paper through the salting solution, it is well to brush it well with a stiff bristle brush, for the purpose of rendering it free from particles of lint that is not unfrequently found upon it. When the sheets of paper have been salted, it should be suspended by one corner, in a room entirely free from dust; and when perfectly dry, pack it in a box where it will be kept clean and not handled, and in this condition it may be kept for any length of time.

AMMONIO-NITRATE SILVERING POSITIVE PAPER.

Spread a large sheet of blotting-paper on a table or counter, then place side by side upon it two sheets of salted paper; first pour about two drachms of the ammonio-nitrate silver solution on one sheet, and with a ball of cotton, spread the solution over the entire surface of the sheet; then pour the excess solution back into the filter or bottle, and place the sheet back on the blotting paper; then proceed in the same manner with the second sheet. By this time the first sheet will have absorbed the silver, and the cotton ball should again be passed over it, first lengthwise and lastly crosswise, then hang the silvered sheet in a dark apartment to dry, and proceed in the same manner with the second sheet, and so on until the desired quantity is silvered.

The process of silvering the paper may be performed in subdued daylight (some silver their paper in strong daylight), but ever afterwards it must be kept in total darkness. To prevent staining the fingers in silvering paper, I would recommend stuffing the cotton ball into one end of a large glass tube like a collodion bottle with the bottom broken off, and the cotton forced through from the larger to the smaller end. The ammonio-nitrate solution and positive paper is better made in small quantities.

PRINTING POSITIVES.

The time required to print from a good negative is 3 to 4 minutes, but this operation depends much upon the sensitiveness of the paper and strength of light. To print well, one must have some practice, inasmuch as the tint or tone of the picture is in a great measure fixed in printing it. It is true that proofs printed too dark, may be reduced to any degree of shade desirable, but not without yellowing the tone and destroying the middle tints. The printing should always be done by the same one that has charge of the toning, or at least he should direct as to the degree or point to which this process should be carried.

FIXING AND TONING.

When the picture is printed, before placing it in the toning bath, plunge it into clear water or into the following solution, which is by some considered best: Dissolve 3 ounces of table salt in 1 quart of water, and immerse the proof in it 30 seconds, and then plunge it into clear water two or three times, then place it in the toning solution, where it must remain from 30 minutes to two hours, or until it has reached the desired tone. The length of time required in toning, depends much upon the strength or condition of the bath. By treating the proof in this manner, a clear and beautiful blue-black tint is obtained. If more of the red tint is desired, use the same toning bath with the exception of the chloride of gold, and plunge the proof in clear water instead of the salted water, or the red tint may be increased to almost any extent, by placing it for a longer or shorter time in a solution of 10 to 30 drops of strong ammonia (aqua) to 1 pint of water.

WASHING POSITIVE PICTURES.

In order to have a durable photograph, it must be washed with great care, every trace of hyposulphite of soda must be removed. When the proof is sufficiently fixed, take it from the toning bath, spread it on a light of glass, and hold it immediately under a large stream of water for the space of one minute; then place it in a reservoir of water which is supplied by a running stream, and let it remain in this condition for at least 12 hours. The object in washing the proof on glass, is for the purpose of forcing the hyposulphite of soda out of it as soon as possible. If the hyposulphite of soda is removed gradually, the desired tone of the proof is invariably lost, and it has a dull or yellow cast. It must be borne in mind, that all proofs, under all circumstances, must be washed at first with the greatest rapidity, and never under any circumstances should they be left for any great length of time in one water. A current is much the best, as a general thing, like a sink or reservoir 6 or 8 feet in length, with a partition at a suitable distance from one end to allow all necessary room for washing photographs, and several small holes in the partition 1½ inches to 2½ inches from the top of the partition for the purpose of discharging the water as fast as it runs in from a faucet, which should be placed at the other end of the sink, by this means the water is continually changing, and there is no danger of staining the proofs.

MOUNTING PHOTOGRAPHS.

When the proof is dry, first determine into what shape it is best to trim it, then lay the mat on the print and mark round it with a pencil, remove the mat, and trim carefully to the line with shears. When this is done, place the mat on the cardboard with the opening, where the picture is to be placed, then paste the picture on the back with gum arabic by means of a soft brush, then place the proof on the cardboard within the circle of the mat, remove the mat and press the proof firmly to the cardboard by covering it with blotting paper, and rubbing and pressing it with the hand.

PRESSING PHOTOGRAPHS.

The hand letter press is generally used for pressing photographs, and answers very well for that purpose. In connection with the press, it is well to have several sheets of Russia iron of a perfectly smooth surface, and the size of the press. Also from 1 doz. to 3 doz. sheets of cardboard of the same size, and before pressing photographs between the cardboard, moisten the sheets of cardboard and put them in the press alternately with the sheets of iron, and press them powerfully for several days, or until they become perfectly smooth and hard. For the purpose of pressing the photographs, arrange them by placing first a sheet of iron, then a sheet of cardboard, on which place one photograph face downward, then another sheet of iron, then cardboard, and then the photograph, and so on; then place the whole in the press and apply all possible power, and let remain for 12 hours or more, and take them out and varnish; when varnished and nearly dry as not to stick together, return them to the press in the same manner as at first, and let them remain in press from 6 to 24 hours, and the pictures will be very firm and beautiful.

SUGGESTIONS FOR MAKING

Available Useless Collodion and old Pyrogallic Acid.

To the Editor of the Photographic Journal:

Sir,—It may not be uninteresting to many of your numerous readers to know, that the ingredients used in the making of collodion ought not to be thrown away, when rendered useless by age, or spoiled in any other way. I am aware that brown collodion is *to a certain degree* restored by the addition of zinc or silver metal, yet the use of those metals is only efficacious so far; and it is only when everything else has failed that I would offer the result of my experiments; and I do so with the hope that they may prove useful to photographers who might otherwise be disposed to throw away the bad stuff as entirely useless. It is as follows:—Mix the whole with quick-lime, the proportions are of little importance, just sufficient to take up any water which the collodion may contain; let it digest for from twelve to twenty four hours, then put it into a glass retort, place it on a sand bath, and apply a very gentle heat. I make use of a common small oil lamp. The ether will pass over first. It is slightly colored which may be owing to iodine set free by the heat, or it may be from some other cause. This I cannot determine, but must leave it to some abler chemist than I am; I am however inclined to believe that the ether is impregnated with a small portion of free iodine, as collodion made by it is capable of receiving a slight impression. When about one-half of the whole has passed over, the receiver may be emptied, and the portion treated in the same way, when alcohol with a little ether will pass over. The strength of each being ascertained, each may be employed for making new collodion. I have so used it, and have found it answer perfectly. The operation is very simple, very cheap, and requires very little attention. Extensive photographers having a large quantity of useless collodion will find it, I think, worth their while to try the experiment.

Another experiment I have lately tried and found it succeed, and not having seen any allusion made to the subject in the Journal it may be worth the attention of photographers generally. I allude to the use of pyrogallic acid. It being still an expensive article, I was induced to try if it could not, like the preparations of iron, be employed more than once for the development of the collodion negative. I tried a portion which had been used some time previous, and had been set aside until almost black, and it developed the picture as promptly as when used freshly made,—I may mention that I use tartaric acid instead of acetic acid; whether this has anything to do in the matter I am not prepared to say, nor am I yet aware how often it may be employed. I have used it, as I have here stated, and have found that the intensity of the picture is equally great as when first made. I shall be very glad to hear that others have tried it, and their opinion on the subject. Yours very truly,

W. Collie.

APPARATUS TO SUPERSEDE THE USE OF A TENT.

To the Editor of the Photographic Journal.

1 Belgrave Place, Wandsworth Road, Oct. 8, 1856.

Sir.—I beg to communicate a few improvements in photographical apparatus; should they be considered worthy of space in your important Journal, I should feel proud in advancing the beautiful art of photography, for I believe that photography and all its improvements should be as free to the world as the light of the sun.

In the early part of this summer, I commenced photography; and as an amateur, I soon collected and distributed the portraits of my family, which I had taken at my own house. So far all went on pleasantly enough, but occupation was almost gone; and like most photographers, I took my apparatus to the houses of my friends, but could not take my dark room with me, and consequently was obliged to spend much time and trouble in preparing a coal-hole or garret for that purpose. What with the fag of preparing and running up and down stairs with my dark slide under my arm, and the fear of creating disorder and being an inconvenience in the houses of my friends, I nearly despaired, but thought to find refuge in the use of a travelling camera. Full of a hope of relief, I started off to Richmond Hill, thinking that I had found an escape from the annoyance of a dark room; but before night how disappointed was I! Certainly, I might have been fatigued with dragging my load up steep hills; but this fatigue was increased by having to bury my head and arms in a camera from which the air was carefully excluded, almost to suffocation, on a hot summer's day. On my return home I tried to determine which was to be preferred, a dark room, or a travelling camera; but I was too tired to settle much in favor of either; my resolve being, to keep my camera at home, where my dark room was fixed. But, before many days, I felt I would rather put up with any inconvenience than stop when my enthusiasm in the art had lead me to partial success. But why (thought I) should so beautiful and delicate an art be encumbered with such ponderous appendages, when the dark slide is already dark, and the silver bath, which may be made dark, might be made to answer the purpose, by passing the collodionized plate from one to the other, and thus with the power to draw it back again, we might take the impression in the camera? I accordingly had my dark slide so altered, which, with my box of baths, made all the change necessary. I will endeavor to describe the arrangement.

In my dark slide I had fitted a hinge, made to fit its entire width, so that the sides would form a guide to its parallel movements, which motion was given by means of a stiff steel wire passing through the top, screwed into the hinge at one end, and a bow at the other to form a handle. At the bottom of the dark slide is a long slot, to allow the glass to be pushed out while being held over the sensitive bath, which slot is provided with a box-wood turned pin, flattened on one side, so that by giving it a quarter-turn it might be opened to allow the glass to pass, or shut to keep out the light by filling up the slot. The hinge is made to clip the glass, in passing the plate to and from the silver bath, by means of a longitudinal spring, screwed on the hinge, which is compressed on shutting the hinged door of the dark slide.

The mode of operation is as follows:—

Pour on the iodized collodion, and place the plate in the dark slide, closing the shutter. Now place the whole over the gutta-percha silver bath, opening the slot by turning the boxwood pin; then, by depressing the steel rod, slide the prepared glass down into the bath, allowing it to remain immersed about 3 minutes, giving a slight rocking motion to the plate, to present fresh surfaces of silver to the collodion. By drawing the handle upwards, the plate once more takes its place in the dark slide. On shutting the slot, by turning back the boxwood bolt, it may now be removed to the camera.

The development is proceeded with by having another bath in the box, to receive the developing solution, into which the plate is passed in the manner described above for sensitizing. This bath (one side of which is of yellow glass) is placed at one end of the box, furnished with a small door; on opening which, the operator is enabled to watch the progress of the development; and when this is sufficiently advanced, the plate may be lifted out to the light, and drawn from the dark slide, to be placed into the hypo-bath; or, if travelling, into a solution of common salt; and at last stored away in the groved portion of the same box, made to receive the plates of glass. I have shown this arrangement to photographers, who are anxious to adopt it, and have operated with it myself with great success. I can now, with comfort to myself, start off on a photographic excursion, my camera in one hand, and my box containing the three baths and two dozen plates in the other, performing the whole operation, from the pouring on the collodion to the finished picture, in the open daylight.

Having now disposed of the cumbersome dark room, I have still to carry about with me a camera and a box, which, so far, has been a great relief, and will do very well for country views and indoor portraits; but there are many views and buildings in London and elsewhere I should like to take, but dare not, for fear of a juvenile audience.

If there could be some means adopted to carry about, concealed from vulgar gaze, the necessaries for obtaining a picture, that would still be an advance on the advantage gained in the dismissal of the dark room. Such a step I am now attempting, by furnishing the upper story of that often-abused article of an Englishman's head-dress, THE HAT. Why not? there is room enough in it; and, if it can be done, it at once disposes of the heavy camera and its appendages, increasing the weight of the hat but 3 or 4 oz.—all external appearance being the same, excepting a ¾th in. hole, which can be opened and shut at pleasure by a sham cord wind-guard. At any rate, however odd, it is worth a trial, as its success would suggest its adaption to an infinity of purposes which cannot be effected by the conspicuous means at present adopted. I look forward to its success, which, if effected, I will with pleasure supply to you in detail.

Trusting that the above may be of service to the beautiful art of photography, I remain, Sir, your ob't. servant,

Alex. I. Austin.

ON THE USE OF OXIDE OF SILVER.

To the Editor of the Photographic Journal:

Sir,—Believing that the enclosed observations have some claim to usefulness as well as novelty, I submit them for insertion in the Journal.

I am, Sir, your obedient servant,

Thos. A. Barber.

To prepare the oxide, dissolve separately three parts of nitrate of silver and one part of fused potash; mix the solutions and place the precipitate on a filter, then wash it well with boiling water.

To neutralize a too acid bath, add excess of oxide and filter; if the bath had contained acetic acid, dilute nitric acid must be then cautiously added till the decomposed acetate becomes apparent to litmus paper. If only nitric acid were present, acetic acid may be employed.

Baths that have become unworkable in consequence of some unknown impurity, may be righted by adding the oxide, exposing it a short time to the light, then filtering and adding acid as above.

Solutions of nitrate of silver blackened by floating papers, may be decolorized by adding a little of the oxide, letting it stand a few minutes, and filtering. Never having used kaolin, I cannot speak comparatively of the two; but as the oxide, in the proportion of about 10 grs. or less to half a pint, removes the color, however black, so very speedily and effectually, I can confidently recommend it in the absence of the other: it also improves rather than injures the bath.

The same agent would no doubt be just as efficacious for the discolored albumenized bath in Taupenot's process.

The oxide is to be used in its moist state, and if the potassa fusa be not at hand, liquor potassæ may be used instead.

From the London Art Journal.

NOMENCLATURE OF PICTORIAL ART.

BY J. B. PYNE.

BEAU-IDEAL.

If beauty thus stands out by itself, prominent as distinguished from deformity, intentional as a work of the Creator, self-repeating and self-sustaining, as is every other work of creation, there will be little difficulty in adjusting its position in connection with the third and intermediate theory, which would make beauty and deformity depend the one on the absence, and the other on the presence of fitness. The deeper the insight we gain of nature, the more we are able to see that this exquisite fitness is equally a characteristic of the beautiful and the deformed, and that there is as yet nothing discovered in which it may be said that this fitness is even comparative. On the contrary, so transcendent does it appear in all instances, so universally beyond the conception of man, that he acknowledges himself to be left without a scale by which to measure the fitness of one thing with the fitness of another. He cannot thus qualify a particular instance in nature by attributing to it some one particular amount of fitness, as nature herself, in this respect, presents us with no degrees; but merely may it be discovered to possess for him some particular degree of fitness or unfitness for some particular arbitrary or foreign purpose to which he would force it. Barely can he do so by supposing it to have different degrees of any apparent present utility—depending, most likely, on his own comparative ignorance, rather than knowledge of the possible ultimate future uses of that which, at any other precise time, may appear to be useless; but to do so he is forced to resort for a comparison to a greater or less beauty or deformity. Thus, then, if anything in nature has in it anything in common besides its own particular identity and presence, it is this invariable fitness. If it have beauty or deformity as well, it has also fitness. Fitness being invariably found, it cannot be called in as a distinguishing mark to separate one thing from others, all which other things having the same amount of ultimate fitness as a general all-pervading quality. This appears to be as plain as that one cannot identify some one particular letter, in a book that may be printed altogether in black ink, by stating the letter to be black; and in the instance before us, the great distinguishing external characteristic of things resolves itself into beauty and deformity. If utility and this fitness could be said to constitute beauty, all the world would be beautiful, as it is all possessed of this fitness, and neither the fact nor the term for deformity had ever been felt or discovered; while beauty itself, either morally or physically, had never been appreciated, from the very want of some antagonism by which to rate its amount.

It were impossible to overrate this fitness of all creation, its necessity, its ultimate completeness; though in the equally necessary absence of infinite knowledge it were, on the contrary, easy to underrate it, and to imagine the possibility of its possessing degrees by which one thing may be rated as in some measure unfit when compared with the admirable of another: and this imagined possibility, untenable in itself, has been at the very base of an erroneous theory of a beauty constituted of an admirable fitness contrasted with a deformity arising out of a fitness less admirable; and, ultimately, out of a great unfitness constituting an ultimate deformity. A notable instance of an error growing out of this absence of knowledge, occurs in the first estimate formed by naturalists on the construction and animal powers of the sloth. It must be that specimens of this singular animal had been first transferred to this country before those persons who actually captured them had thoroughly become acquainted with the whole of their habits. They were then placed in the ordinary den, or cage, of our museums, and created much attention by the then unaccountable fact of their walking, or attempting lamely to move, on the outside of the paw, instead of—like other animals—with the bottom of the paw on the earth; their long hooks, or claws, in this position lying parallel with, instead of perpendicular to the ground. Upon the appearance of this singular phenomenon, the whole of the half-philosophical world were very much inclined to the delusion that they had caught creation napping in the production of an animal with four legs and feet, but at the same time without the power of readily walking; while at first sight a very natural notion prevailed that it necessarily should be capable of walking, if only in search of food. However it might have been, this fact of the absence of a power of easy locomotion much perplexed people, and the perplexity set afloat numberless more or less strange theories to reconcile it with the generally received belief in the universal fitness of things.

The two most singular of these theories being, the one that it offered an extraordinary proof of the as generally received axiom that there is no rule without an exception—this being an exception to the rule of the universal fitness of created things; and the other that some animals, perhaps being at the same time epicurean as well as carnivorous in their tastes, and loving sloths, this derangement of the locomotive powers in the latter animal might have been an arrangement for rendering it a more easy prey.

These little delusions, however, vanished under a fuller knowledge of the habits and locale of the animal in question, up to this time considered the most "injured, unfortunate, and melancholly of all living things;" and those peculiar structural characteristics which at first view seemed to threaten its probable long existence, were ultimately discovered to be as felicitously contrived to continue the species to eternity. In no respect could they have been otherwise so well adapted to this end, either as regards the sloth itself, or the food that was to sustain its life. Hung by those long crook-like claws under, instead of upon, the branches of trees, the sloth was thus suspended amidst the fullest and richest supplies of its constantly accumulating food, which position it was enabled to keep for any length of time from the great strength of its feet and the crook-like character of its suspending claws. We have now nearly done with these opinions, which would disturb the position of beauty on the earth, hustle her from her throne in the heart of man, and warp the beneficent intentions of the Creator in the great object of creation. This third and intermediate theory, then, carrying with it all the weakest characteristics of an invention of man rather than a discovery, falls to pieces from its own want of fitness. The want is self-evident in its own premises, which disappear in every evolution to establish themselves; and if anything said here may tend to dissipate what I imagine to be the errors of the second and third theories, much good will have been achieved, as by a constant displacement of error, and a re-agitatation of any subject, truth will be the more likely to make its appearance.

There is one grave error indulged in by the inartistic public of the term *ideal*, which goes far to weaken the claims and obscure the real character of the beau-ideal. It is, perhaps, unfortunate that the term ideal has been adopted, as it has created a notion, and a widely spread one, that the beau-ideal is an inventive beauty, which though under an easily appreciated form, as illustrative of man, is, nevertheless, never found in nature. This supposition that the beau-ideal is never found in nature is entirely erroneous. That the exquisite perfection of the details of the human form, found in those sculptures to which we assign the characteristic of the beau-ideal, is incompatible with the powers of nature, is equally so. It may be said, in opposition to this view, that a search through a thousand instances of the human form may not present one perfect individual. The obvious answer to which is, search through ten thousand. If ten thousand will not yield one, try ten million. If Europe itself prove unproductive, try the remaining quarters of the globe; and if the whole world itself present but one individual at any one time equal to compete with the beau-ideal of the *elite* of the sculptures of antiquity, it will be a sufficient vindication of the power of nature to produce that which has been all but universally considered to be the invention of man: morosely considered as an egotistical illustration of himself; and beneficently, as one of his mose fervent as well as purest aspirations after perfection.

The existence of the beau-ideal then is, on the contrary, one of the great facts in nature, and not a gratuitous invention of, but a mere reproduction by, man from its original type. It demonstrates the highest intention of creation as to form; and if realised but rarely, so much the more value attaches to it when found. The general everywhere-to-be-found character of the human form is merely a vacillating line which degrading influences have been able to warp round this high central one, to which, or from which, the same vacillating line may be said always to either tend or deviate. It is the want of a due sense of the grandeur, the purity, and the beauty of this intention of creation towards the beau-ideal, that gradually depraves the mind itself; and, ultimately, in its lower states of pictorial degradation, induces one man to paint you a Jesus Christ with bunions and bandy legs, and another to disguise the world's Redeemer in a watchman's greatcoat, and a countenance that would undignify a watchman; while the same mental depravity with a little more ignorance superadded, are sufficient to produce a crown to admire them.

These eccentric and vacillating lines, playing round the pure one of the beau-ideal, may be compared to vice, in its thousand forms, surrounding virtue—shaking her pedestal without destroying her, but at the same time shrouding her from public contemplation: and it is only through this burly, boisterous, and gibing mob, that it may be approached with the constantly-increasing risk of being permanently fascinated on the route by some less worthy object than the one originally sought for.

The Greeks—whatever might have been their mode of study, and guided by whatever principles—seem to have been possessed of a more indomitable constancy than the moderns, in this pursuit of the unvitiated beauty of the primal form. It is now pretty generally considered that their search was principally for a mean and central line, dividing equally the erroneous and varied lines that presented themselves in the common nature round them; and it is more than probable that long before the time when in this country instances of the beau-ideal may become as frequent as they must have been with the Greeks of the artistically classical period, this mean or central line in nature will again be the great object of study. It is quite evident that the power cannot be gained by the classical sculpture alone, though more than likely that it may be approached through it, as an unexceptional source through which to acquire the power of drawing, but a very equivocal one for imitation; for a man must rise above it to be able to do the like, as execution is always below conception.

As a great artist, better to have never known the antique than to suffer it to absorb the entire affection. Better by far begin afresh, and look again upon man in the aggregate as the beautiful of that nature out of which he has been called. And may we not find, by a comparison of himself with his constituent nature alone, a path by which to arrive at a comprehension of his beau-ideal? It were easy to broadly answer this query negatively by stating, that if it may not be arrived at by this process, there is no other open by which it is so likely to master the solution. The Greeks might either or might not have proceeded upon this broad ground of centralizing man. If they did, there is no record of their aim or plan, except as derivable by supposition from their works. This supposition, as given by the older cities to the world, is an entirely gratuitous one, without why or wherefore, and has consequently been altogether discredited, or held in very weak faith, except by those few who—without any such intimation—would, in their own sound mode of reasoning, have struck out again the same theory.

The aim will now be, instead of giving again the unsupported dictum, to establish the fact of the existence in actual nature of the beau-ideal, and clear a path to it by analysing man in his state, form, place, and sentient and mental qualifications, as affected by the simple and single test of centralization.

It may be admitted as a starting point, though with the risk of somewhat vexing the question, that man is not strictly, entirely an original, for what can be strictly so in an eternal order of things, in which all is either concentrically or excentrically analogous? For, allowing the universal dictum that he is within himself an epitome of all creation, or of the world—taking more confined grounds—this duplex character limits in some degree his entire originality, in establishing his reflected and composite nature—an union of all the elements of nature, differing in form, with superadded mentality and future life. Take at first, for instance, the most general and least particular of all other qualifications—that of size. He may be stated as exhibiting a perfectly central position, of which to measure upwards to the largest, and downwards to the smallest instance of animal life " by the sweat of the brow." Take a next general and comprehensive point as affecting his existence—his place on the earth, and this will be found to be central or mean also, nicely poised between the hotter and colder regions. For however it may be possible to find human organisms capable of sustaining life imprisoned in snow dens in the frigid, or like an animal of the field lying under the shelter of leaves in the tropic zones, the temperate portions of the earth are best suited to the production, cultivation, and sustentation of the moral, intellectual, and physical man; while his reproductive powers, under temperate climates, doubles the ratio to be arrived at in either tropical or frigid countries. Many will insist that there are organisms as fitted for the one extreme as the other. Granted! And there is nothing lost by the admission, for it may be asserted that, for every one fitted for either one or the other of such extremes, there are twenty who are not, and those fare equally well under a temperate sun. At any rate, take man in the aggregate, at the zenith of his capabilities, and he is only to be found in those parts of the earth enjoying a middle temperature.

Again, in assigning him a place in relation to his size and its necessary proportions; their characteristics will be found to be central—midway between the large and the small, the light and the heavy, the attenuated and the bulky; their proper range alternating in degrees between the elegant, the beautiful, and the dignified. Taking the both together it never rises to the grandeur of the pillared and domed elephant, nor descends so far as ever to bear a humiliating comparison with those of the lesser animals whose fragile structures are disarranged by a breeze or destroyed by a shower, but holds a medial position between the two. Man never ascends to eminent grandeur by means of his general outline alone. His arms would appear to hang, and his legs to stand in the way of an ultimate grandeur; and by the head alone, burning in its intellectual intelligence, and glowing under the effulgent influence of high passion, does he ever achieve it. By the exhibition of intellectual power in forcing an adverse situation, the head alone, with even the weak accompaniments of arms and legs, may become sublime. On the contrary, an unintellectual man by means of his general form alone under no circumstances may even become grand, though he may be born eminently beautiful, though he may have even those proportions which a sculptor may, in courtesy, pronounce grand. As regards, again, the mechanical forces, he remains about the centre of animated life, neither possessing the quickness of one species, nor the mastery over weight of another.

The most difficult thing perhaps of all others to accede to is, man's mean state as regards the senses, or some of them, inasmuch as through these he receives the first intelligence on all subjects that lead to the completion of his intellect, and render him ultimately the most intelligent of creatures; and so much so as to induce him to pronounce all the rest of the animal creation to be destitute of the reasoning faculty. It would, therefore, be more consonant with our preconceived notions of the necessities, and, at the same time, more flattering to the hugeness of our egotisms, to find ourselves possessed in every instance of better and more perfect senses than our subordinate fellow animals. Be it as it may, however, he is found to be inferior to the bird in precision, if not force, of vision; to the dog and many other animals in that of scent; and to many others in point of hearing.

It is far from an unamiable, unsocial, or rebellious feeling that induces this expression of opinion, and, while holding it, it ought at the same time to be inferred that this superior power of sight, scent, and hearing, in the lower animals may be confined to certain modes only, and not to embrace a range so wide and diversified as that possessed by man, whose necessities, requiring a highly varied power of sense, have given him one of less precision as applicable to some one given purpose. This mean state of sense, therefore, instead of derogating from man, constitutes his gloriously general superiority over every other sentient being, giving him general while refusing him particular power.

Taste and touch, however, remain the comparatively sole property of our species, in which powers we transcend all other animals—if touch may not be made an exception in favor of some few whose locale precludes the use of what visual power they may have.

It is unnecessary here to speculate too minutely on the possible motive in the creative power for poising the human family in this medial state. It will be sufficient to draw particular attention to the fact for the purpose of establishing some grounds for future induction. A few words, however, bearing on our own particular subject may be admissible. By reflecting the whole of creation on the constitution of man, and making him—as a matter of necessity—medially an epitome of the universe, he is thus intimately associated with the universe itself. It gives him an instinctive interest and solicitude in the whole order of things as they are; and his mean state enables him to the more readily reach, as it were, mentally from one of their extremes to the other; the more so than if he were more closely allied to the greater or lesser instance of it. If, for instance, his natural proportions were less, he could not so readily acquire control over the large; and if much larger, he had lost power over the more minute; if either one or the other he had never been in close associateship with either. In fact, had he been of the size of the ant, his largest ships would have been less than a washing-tub, and he had never crossed the Atlantic; and if of the size of the elephant, he had never found earthly materials out of which to construct a vessel capable of holding two thousand of his huge companions. With the dimensions of one he had incumbered the earth; while with those of the other he had merely infested it.

In looking at any apparently incomprehensible fact in nature it is useless to wonder at the whys and the wherefores that it may raise, or to entertain them at all in the manner of doubts as to a perfect fitness. The time spent in doubt on this particular point is time thrown away, and one only begins to save this time when it shall be determined to receive all nature like a schoolboy receives the elementary portion of his education, in perfect faith and reliance on its being all right and necessary. The metaphor which describes creation as a sealed secret was conceived in a moment of libellous ingratitude and mental idleness, and has been merely received unquestioned by the world on account of an apparent ingenuity during its period of weakness. The more informed world discovers it to be merely locked, and at the same time finds itself to be the key. No rude instrument by which force is made to supply the place of skill, and through which fracture takes the place of discovery, nor any sneaking agent by which the wards may be passed; but the key itself, made for the express purpose, with a nicety of adaptation which finds a point of unerring and ultimate fitness in every minute phase of his nature. A more subtle ingenuity, and a more extended information will be able to carry this analysis through other and more striking channels than are here touched on, by which to further illustrate this general position of our species, and deduce its perfect necessity from its resultant fitness.

Having in accordance with the previous views centralized man in the aggregate, examine him now as an individual, always bearing this inquiry in the van:—Where is his beau-ideal? Where his ultimately perfect form and development? Does it obtrude itself in the giant, or does it hide itself in the dwarf?

The hope of finding it wallowing in bulk is just as preposterous as that of discovering it dwindling away in stunted proportions. It must then be looked for in the mean or central dimensions and proportions, like everything else having truth or beauty for its character.

If we descend from the general form to the members, it would be as hopeless to expect it in either the large or the small. The too largely developed head, with its either extravagant or stultified projects, no more than the one of contracted and inefficient organism, realises beauty. That the small hand pertains to nobility must be a sheer conceit; but, if true, added to its weakness, merely dissociates nobility from beauty equally with the large one, which is merely indicative of power. The feet would go by the same rule; and the legs must follow. On looking at the most classical works of the ancient Greeks it is impossible to refuse the conviction, long ago surmised only, that their search for beauty lay through some imaginary central or mean line, at once avoiding the full as well as attenuated, the big and the little, and that the proportions adopted for the minor parts were as studiously projected on the same medial adjustments. But it is not so certain that they decided these dimensions and proportions from a mean line deduced from the whole of the human races; and much more likely that they were content with those derived from the Greeks themselves, Greek giving to Greek. At the same time it is most unlikely, from what may be collected from their writings, that their conclusions were drawn from, or were biassed by, considerations connected with the centralism of man himself in the creation. This may not be determined without a minute and extensive acquaintance with Greek literature, but it is to be inferred that the character and object of it did not tend in this direction, and that we are indebted more to the general inventive and tasteful powers intuitively possessed by that people, along with that well-developed form consequent in some measure on their climate, but more on their habits and manners, for that much of the beau-ideal that we have inherited from them in their sculptures. It may be said that we—that is the moderns—can do the same thing again, having access to the same principles. If it were not that such principles are no principles at all; and added to which we may, or may not, be in possession of the same amount of intuitive perception of the beatiful, and certainly not of the same advantages of climate, habits, and manners.

If we are—like so many savages—to look upon these sculptures in silent and unproductive admiration, as something very extraordinary, done by some now extinct very extraordinary people, it may or may not be all very well to go on admiring, spinning cotton, staining paper, daubing canvases, and emigrating. An inspiration, however, lies burning around the soul to transcend these glorious Greeks. It occasionally, at a single flash, consumes all these thoughts about cottons, papers, and canvases, and leaves his unclouded effulgence the inner orb of our civilizing natures, prone only to transcend and beautify. We have already done it in politics, in diplomacy, in machinery, and in war, but Art has been left to thrive as it best may on empiricism and native courage, unprotected, and, in a great measure, unrecognised; and if ever we transcend in the production of the beautiful it will be by having access to more comprehensive grounds to proceed on, acknowledged to be at once rational and certain.

HOGARTHIANA.

About two years ago, I paid a visit to the house at Chiswick in which Hogarth resided, occasionally at least, during the last twenty years of his life; his town house, now the Sabloniere Hotel, being in Leicester Square. In the house itself, so far as I could find, there were no memorials of the great artist. On the lawn, in front of it, there was (and is still, I think), a very ancient mulbery tree, which, in Hogarth's time, was struck by lightning, it is said; and the iron braces or girders, by which it is held together, were made by his direction. In one corner of the garden, there were two neat little tombs (in true *Oatlands'* style), with slabs inserted in the wall, in memory of two favorite dogs. On one of these was inscribed: "Alas! poor Dick," with the date 1764, and the initials of Hogarth himself, *I think:* he himself died in the same year. On the other slab was inscribed: "Life to the last enjoy'd, here Pompey lies, 1790,"—an evident adaptation of Churchill's epitaph at Dover. Mrs. Hogarth died in 1789; but the remembrance of the feud between Hogarth and Churchill seems by this not to have died away with the survivors of the household! Where Fop's tomb is I know not.

Over the stable, a very limited abode for some two or three horses, a room was pointed out, which I was informed had, for many years, been the artist's studio. From the comparatively large dimensions of the window (which, as seen from the outside, appears to have replaced a smaller one), I have little doubt that such is the fact. As the stairs are narrow, his paintings, I presume, would be let down through this window, for transmission, in his carriage, to town.

His tomb, in Chiswick churchyard, has been very substantially repaired, I am glad to say, and at the sole expense of Mr. Hogarth, of Aberdeen; a gratifying instance of genuine enthusiasm. One of the workmen told me, that upon opening the grave, the plates were found on the other coffins, but that there was none on Hogarth's coffin, which was smaller than the others. It is not improbable that the plate was removed when the grave was opened some twenty years ago. It is a curious coincidence that, while these repairs were going on, a great part of the garden wall at Hogarth's house fell to the ground; being blown down by the violence of the wind, I think.

It is not very many years since that a carpenter died in Chiswick, who used to say that, when a boy, he had worked for Hogarth. HENRY T. RILEY.

From the London Art-Journal.

HISTORY OF ART IN BOSTON.

DEAR SIR,—I have spoken of our three great Atlantic cities—New York, Philadelphia, and Boston—as the Art centres in the United States, towards which all the talent of the land converges for development, or whence it radiates for employment. Of these three, Boston—in whose nursing arms much of the civilization of the New World—its sturdiest populations, wealth, activity, and intelligence, grew up—was once the chief. Sole oracle in every matter of taste and opinion, she drew to herself all intellectual capacity in search of recognition of approval; to her came the foriegn artist, venturing westward in quest of fortune; and the native tyro, eager to try his young wings.

Excepting only a Scotch portrait-painter, John Watson, who established himself at Perth Amboy in New Jersey, in 1715, the first artists in America, of whom we have any memory, lived and labored in Boston. These pioneers were of course from beyond seas—from your own English shores—and we have a grateful remembrance of your good timely help, though it was really so slight that, with our first native effort, it was no longer needed; and though we have since repaid you a thousand-fold—sending you, for your Watsons and others for whom you cared not, our Wests; and Copleys, and Leslies, and Newtons, whom you delight to honor.

The first and best of these early painters, whose brief and humble history makes the initial chapter in the story of American Art—the scene laid here, in Boston—was John Smybert, who accompanied Bishop Berkeley, with the "course of empire," westward in 1728. In a picture of his, representing the landing of his patron's party, we have our first historical canvas—the first, at least, ever executed here in which there is more than a single figure. Smybert, though a man of only moderate ability, did more than merely supply the demand of Art-production of his day. He left behind him, as none other of his fellows did, an influence which worked for good in the professional education of those who came after him. In his pictures there were incentive and examples to Copley, Trumbrell, Stuart, and Allston. "I am," said Allston once of a copy of a Vandyke by Smybert, "grateful for the instruction it has given me." Trumbrell, when he left the revolutionary army in 1766, set up his easel in Smybert's apartments in which there were still many of his pictures. Smybert is referred to by Walpole, in his "anecdotes," as a modest man, earnestly and sincerely devoted to his art.

Symbert's most skilful colleagues in the immortalising of the magnates and the beauties of his time was a Mr. Blackburn and others, in Boston; Mr. Watson (already mentioned), in New Jersey; Williams, in Philadelphia (gratefully remembered, for his counsel and encouragement, by West); Feks, Green and, others, in Pennsylvania and Newport; and Theus, of Charleston, in South Carolina.

At a somewhat later period, the art of engraving was practised in Boston, for the first time in America, in the hands of Nathaniel Hurd (1764). of Paul Revers, and of Amos Doolittle (1771.) Doolittle did the earliest American historical plate, in a picture of the "Battle of Concord."

This little band, few and feeble, of missionaries from afar was immediately succeeded by a sturdy native *troupe*, in whose genius American Art sprung with a bound into Pallas-like life and strength. Of this second chapter Boston is still the theatre. It begins—and certainly it is a brave beginning—with the lives and works of Stuart, and Trumbrell, and Copley, in Boston; supported by West in Philadelphia, and by Peale, in Maryland. Of these men but little is left for us to say here, after all which is familiar to all of them and of their genius. Of two of them, indeed (West and Copley), more should be known to you than to us, since from their early and unbroken association with British Art, they belong more to England than to America. To Trumbrell the nation owes the embodiment of many of the chiefest scenes and incidents in its history, and the artists many invaluable and enduring examples and teachings. The works of Gilbert Stuart, while they illuminate the past, serve equally as priceless lights to the future. Peale (Charles Wilson) will be ever gratefully rememembered for his professional labors, and still more for those many accessory toils in which his active spirit and his Art-Love kept him unceasingly employed. It is to his industry and enterprise that we owe our Museum Collections, and perhaps our Art-Academies. Certainly the first efforts to supply schools for the study of the antique and the living model were made by him, though his ventures were lost—all for the very simple and natural want of students to use them! Still it was the bread, no doubt, which he thus and then cast upon the waters that we are now eating after many days.

Ending here this hasty mention of the second period in the history of American Art, we come—still partly in Boston—to the third; and thence, so insensibly to the fourth and last, that it is difficult to make the dividing line. To this division there may be set down (though many, indeed most of them, are still living and toiling) Herding, Alexander, Fisher, Allston, Frothingham, Greenough, and King, in Boston—leaving Leslie and Stuart Newton to your London muster-roll; Sully and Peale, in Philadelphia; and Durand, Inmans, Merse, Vanderlyn, Ingham, Cummings, Dunlop, Weis, Cole, and others in New York. The fourth or present period, the scene now quite removed to New York and Philadelphia, is too long in names of repute and promise for more than reference at this time—so the chapter must come in by and by. I have linked these names, not as peers in professional skill, but as fellow workers, all laboring in the measure of their strength, and of such labor gratefully remembered and honored.

Of the Boston painters of this period, Chester Harding and Francis Alexander are still actively occupied, after a long and most successful service, in portraiture; so Alvan Fisher, in landscape. Charles B. King, whom I should have mentioned in my last letter from Rhode Island, is a native of Newport, in that State. His early life was passed in Boston, but he has for many years past been popularly and fashionably employed as a sort of court-painter in Washington. Frothingham, born near Boston, and long practising his art there, has been for years past a resident of the vicinity of Newport. Horatio Greenough, one of the most eminent of our sculptors, the first whose genius was given to the glory of the national fame in Art, was borne in Boston in 1805, and here too he died only a year or two since. His "Chanting Cherubs,"—executed to the generous and appreciative order of the novelist, Fenimore Cooper,—apart from its intrinsic worth, is most interesting as the first original group from an American chisel. "Greenough," says Emerson, in his "English Tracts," "was a superior man—ardent and eloquent, and all his opinions had elevation and magnamity."

Allston in popular esteem the greatest among our painters, was a native of Carolina; but the glory of his professional acchievments belongs to Boston where he passed his life. It was his fame alone which for years kept up the old Art-reputation of his adopted city, in rivalry with its own decay and the growing renown of Philadelphia, and more especially of New York; and when he died, Boston ceased to be—in respect to the numbers and genius of her painters, at least—the "Athens of America." Let her people see to it, that her proud boast be not forfeited for ever or that it shall belong only to a brilliant past. Let them set generously and earnestly to work, to discover the smouldering embers of Art-life on their ancient hearths, and to fan them into the glowing vitality which is now stifled by neglect alone.

The universal complaint of the Boston painters at the present moment is, that Art is dead, or dying in their midst; and that the people do not know or care what they are about. Half of them are sighing for a more genial and appreciative home; and not a few have lately removed, much to their advantage to New York, or to other cities. This depressing state of affairs you must not imagine to be the fault of the painters themselves: on the contrary, they are a young, and gifted, and earnest, and brave brotherhood, laboring and waiting patiently and manfully. Among them there are at least half-dozen excellent landscapists who, however successful they may be, will never reach the full development of their powers in the stultifying influences of the æsthetic east wind which now surrounds them. In the studio of a crayon-artist here, I have just seen some female heads of wonderful refinement and subtility of feeling. And yet I am told that his sitter's chair is not half occupied—even at half the price for which it would be eagerly sought elsewhere.

Some seven or eight years ago, there existed here a society called the "Boston Artists' Association," to which the public was indebted for the new pictures which each season gave life to the old exhibitions of the Anthenæum. This good office is now done by a smaller and quite informal organization known as the "Artists' Club." It is the only Art-society proper, of which the city can boast. The Annual Exhibition by this Association of current works, got up as usual in connection with the permanent Gallery of the Athenæum, is a very interesting display. The Athenæum is an ancient and well-to-do establishment, occupying a large and imposing edifice, with a creditable library and reading-rooms, a good collection of statuary and casts below stairs, and well appointed exhibition galleries above. Among the pictures in the possession of the Athenæum" is Trumbrell's "Sortie of Gibraltar," and his "Priam receiving the dead Body of Hector;" one or two Allstons; portraits of Webster and others, by Chester Harding; Stuart's original study for his portrait of Washington, and of Mrs. Washington, with other works; Ary Scheffer's "Count of Wirtembergh lamenting over the dead Body of his Child;" pictures by Sully, Copley, Rembrandt, Peale, Leslie, Neagle, Weir,—together with a Titian, a Poussin, an Andrea del Sarto, Velasquez, and sundry old masters more or less aged. Among the pictures indefinitely "loaned" to the gallery are the five grand landscapes by Cole, representing the "course of Empire"—first in the savage, and then in the Arcadian or pastorial state; then the commencement and the glory of empire, and finally its destruction and desolation; numerous works, poetic, historic, and landscapes, by Allston, among them the grand "Belshazzer's Feast," which, after nearly thirty years of occasional labor, he left at last quite unfinished. This bold work the artist faced with the encouragement of commission of ten thousand dollars, subscribed equally by ten or more gentlemen of Boston. He could not possibly have undertaken it at the time he did without such certainty of sale; for, at that period, no artist could provide bread for himself by painting works of the imagination alone. Once when I was alluding to this fact, *a propos* of a mention of Allston,—"Yes," replied my friend, "most true! Indeed, Allston himself may be said to have lived for a quarter of a century on 'Belshazzer's Feast!."

But, returning to my catalogue, I should mention among the loans, indefinitely or for the season, the fine picture of the "Chorister's Consolation," and the "Dante and Beatrice" of Ary Scheffer; a portrait by Stuart Newton; some pictures of horses, by Rosa Bonheur; "Love Torch quenched," from the pencil of Angelica Kauffman; Sant's "Fortune-teller, among the last year's prizes of your London Art-Union; two pictures by Toermes, a German: a "Stable Scene" by your own Herring; something of Claude, of Carlo Dolce, of Teniers, of Gerard Dow, of Canaletti, and of Greuze.

The artists of New York, and other cities contribute liberally to the Exhibition, their works making one of its especial features. This contigent includes characteristic and clever examples of Lilly, M. Spencer, Huntington, Gray, Chapman, Rossiter, Page, Cropsey, Kensett, Church, W. Hart, A. D. Shattuck, Edwin White, Edmonds, E. D. E. Greene, A. F. Tait, G. L. Brown, F. B Carpenter, Paul Webber, Terry, Samuel Laurence, Vincent Colyer, W. J. Hays, W. Heins, Durley, Stillman, Gijnoux, Boutelle, and Johnston.

The Boston painters are themselves nearly all fairly and well represented on the walls:—Champney, Gay, Gerry, Williams, and Frost, in landscape; and Pope, Amet, Hoyt, Ordway, Childs, Wight, Willard, Hartwell, Hinckley, and Wilson, in figures and portrait.

In the statuary hall of the Athenaæum there are numerous works of Greenough, statues, busts, and bas-reliefs; a bust of Webster, by Powers; the "Orpheus," and the "Hebe," and "Ganymede," of Crawford; "Avengers," Allston; Ball Hughes, "Uncle Toby and the Widow Wadman;" Stephenson's Dying Indian," Mackett's "Shipwrecked Mother and Child;" a cast of of the statue of Marshall's "First Wisper of Love," lately presented to the Athenæum by the London Art-Union; a statue of the late Judge Story, by his son; some originals and copies of Canova; and numerous casts from the antique. Most of the works I have mentioned here are originals, in marble. Many of the sculptors are natives of Boston, the city taking better care of that art than of painting—very possibly because the "marble people" live abroad, and are thus invested, or are so supposed to be, by that prestige of foreign approval, so acceptable to our people in their characteristic respect for authority. This same humor of deference to venerable opinion has sorely afflicted Boston from the earliest antiquity until now with the old-master mania. The private galleries are stifled with their blackness of darkeness, with here and there, of course, a ray of purest light. American Art is not as much in vogue here as in other places, since Boston holds yet to the exploded fancy that "nothing good grows in Nazareth:" nothing—unless it be the exception which I have already made, of sculpture. In this department, perhaps, the city may regain its old Athenian repute; for next week famous honors are to celebrate the erection in its streets of a colossal bronze statue of "Franklin," modeled by Henry Greenough, a brother of the late sculptor Horatio. And the people are seriously thinking of pursuading Mr. Crawford (already occupied with extensive commissions from the national Government, and from Virginia) to make a colossal equestrian statue ("*on horseback*" one of the Boston papers says), to embellish their beautiful "common." In addition to all this, they are speedily expecting the arrival of a grand bronze statue of Webster, which they some time ago entrusted to the genius of Mr. Powers.

I have reminded you before of our remarkable achievements in this high art, and the symtoms of a marble and bronze epidemic, not in Boston alone, but the land over, are daily increasing. There is in statuary a tangible actuality and substance which suits our love of the real, and in which we can see, in a degree, the "worth of our money." Luckily, the good taste of our people in this regard, and the true genius of our sculptors, assure us that it will be in any case "all right."

I shall, at some more fitting time, tell you of Boston as the heart of our chief manufacturing interest: of the great mills of Lowell, or Lawrence, of Manchester, and of many other surrounding hurly-burlies of ingenuity and industry. In a few days they will speak for themselves in the annual display of the Massachusetts, Charitable Mechanics' Institution, now on the eve of its Eight Annual Exhibition. This fair, and similar ones in New York and other cities, are always very successful in the arrangements and in the results. As a means of instruction and development in Manufacturing Art they are becoming a very important power.

T. A. R

Boston, Massachusetts, September 8, 1856.

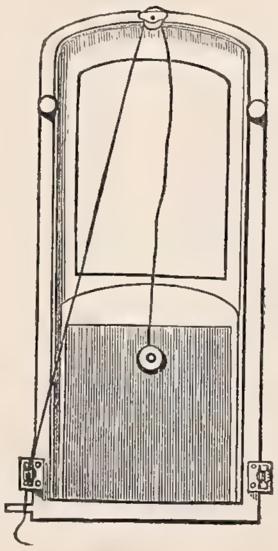
THE PHOTOZONE.

To the Editor of the Photographic Journal:

Exmouth, South Devon, Sept. 29, 1856.

Sir,—I have had in use for some time one of Ross's 3 A lenses, and an Ottewill camera, but, admirable as they are in all other respects, I have experienced considerable inconvenience in removing and replacing the cap of the lens, owing to the size of the camera and tripod. I have, therefore, after no little trouble, had an instrument made, which, I am told by professional and amateur artists in this neighborhood, completely obviates the difficulty, being easy of application, and rapid and certain in operation.

I enclose a photographic sketch of the Photozone, as I have named the instrument, closed. It consists of an oblong piece of mahogany or other wood, in the lower section of which is an aperture accurately corresponding with the circular brasswork of the lens. There are three pulleys attached to the framework, one at the top and one on either *lower* side, and three ivory buttons, one on the slide and one at either *upper* side.



Playing in a double groove, and covering or exposing the circular opening, is a clamped slide lined with black velvet; screwed into this is a small ivory button, as shown in the sketch, to which is affixed a stout silk cord, passing through the pulley at the top of the frame, over the ivory button at the upper, and through, and in front of the pulley at the lower end. Upon the proper arrangement of the pulleys the facility and certainty of the working depends.

To my own tripod is attached a hook, which retains at pleasure, and within reach, a loop of the cord; so that, while focusing, both hands are at liberty; before inserting the dark slide, the cord of course is released, and every particle of light excluded. When all is ready for exposure, the slide of the Photozone is raised by the cord (the operator standing at the back of the camera). When the exposure is complete, by dropping the cord, the descent of the slide is instantaneous.

In Photography, I think that every useful hint, as I humbly trust this may prove to be, should be freely communicated to the brethren of the charming art, and rendered as widely available as possible. I have, therefore, not hesitated to trouble yourself and your readers with these remarks. The instrument has been constructed, under my directions, by a most ingenious and respectable artisan, Mr. Simon West, 32 Albion street, Exmouth, who is prepared to execute the order of any gentleman who may care to possess one, by having forwarded to him the EXACT circumference of the brass-work of the lens, and a post-office order 1£. 2*s*.

There are pulleys and ivory buttons on *either* side, partly for the sake of uniformity, and also for the purpose of enabling the operator to take his own portrait, without interfering with his arrangement for sitters, as by using a second and longer cord through the opposite lower pulley, and attaching it to his foot, he can raise or depress the slide at will. It is perhaps needless to observe, that when operating upon a sitter, the cord is passed to the front of the lower pulley, and to the back when operating upon himself.

I may add, that, independently of the utility and extreme simplicity of the Photozone, it is highly ornamental; and I have a firm conviction that, after having been fairly tested, as it has now been by me for some months, no photographer who consults his convenience, and works with a 3½-inch or 4-inch lens, will willingly be without one.

The Photozone is easily mounted, by gently forcing the brass-work of the lens into the circular aperture of the instrument, which should project about ⅛th of an inch beyond the brass-work, to ensure the rapid ascent and descent of the slide. It is then ready for work. I have the honor to be, Sir,

Your obedient servant,

Rob. Maidstone Smith, M.D. Oxon.

"HUMBUGIANIA."

To the Editor of the Photographic & Fine Art Journal:

Sir,—As it was in the early days of the Daguerrean Art, so it is now with the Photographic process, by which I mean that on glass and on paper, and possibly ever will be as frequently as any new discovery becomes developed, viz. that of bringing into existence, or if not into existence, making such visible to our material " ken," a class of beings who live not by their labor but by their wits, persons who go prowling about with some great secret for curing a particular evil, the curability of which is known only to themselves, if it has never arisen to the one thus talked to it will arise, and then how great the pleasure to have the cure at hand.

For some time past the great object to be attained, was the obtaining of negatives in as quick a time as direct positives Soon the great " German process" sprang up, as called by some, warranted to take negatives in five seconds, and good ones at that; this has been as evanescent as could have been expected, and therefore has had its day, those that have bought it, finding themselves beautifully sold, the price having dropped from fifty dollars to five, can be had doubtless at present, by almost any one who will generously accept it, as a gift. Of this process, however, it can be said it had the appearance of originality, and many of its would-be-teachings, savored of something worth knowing. Not so the one to which I would wish to call your attention, and possibly the advancement in knowledge, of some of my photographic brethren, which is this:

A certain itinerant photographer, or one who would wish the world to so think him, from Boston (whose name is H—gg—ns), has taken " the stump" with a very slight knowledge of ambrotyping,—a single ambrotype in his pocket,—a large amount of that common material, " cheek," vulgarly so called,—but not the less expressive,—and which with the ambrotype in his pocket, comprises his whole and entire stock in trade, endeavors to persuade (and but for my interference in one instance, would have been successful), that he alone possesses the only true secret of making a silver bath in such perfection, that it can never go wrong while the world and it lasts. Can never spot, can never fog, cannot require acid after his quantity has been put to it. To talk about neutralizing is all nonsense—in short and in fact, 'tis he alone that has arrived at the climax of perfection in making ambrotypes with success, invariable success. Negatives, he says, he knows nothing of (the only modest point I found in him), and as an evidence of what he knows, and therefore must know, it has cost him four hundred dollars to know it—is no sucker—has plenty of money (to prove which, exhibits a roll of bills, in the interior of which is enveloped two twenty dollar gold pieces), therefore money is not his object, of course wishing it to be believed that his mission is merely one of benevolence, and to assist in paying his board; if you only hand over the modest sum of ten dollars he will put you, with such an earnest of friendship in your hand, up to the whole secret and mystery of this millenium in the ambrotype art.

This, Mr. Editor, is merely the old iodizing process published in "Notes and Queries," as far back as about the month of January, 1854, and which reads thus:

Nitrate of Silver.................... 5 drachms.
Distilled water....................10 oz.
and add—
Iodized collodion..............2 drachms, and filter.

Then add nitric acid until blue litmus paper turns slightly red.

This "fire-eating conjurer" says:—

Bath, 40 grs. to the oz; iodized collodion, $1\frac{1}{2}$ oz. for 80 oz. of bath solution, and 20 drops of nitric acid. You and your readers will now know the great secret, and be able to judge of its originality and usefulness.

I am, Sir, yours obediently,
J. Cartledge.

THE PALMER MARBLES.

[As it was not in our power to accept the invitation of Mr. Palmer, to visit his exhibition on the evening in question, and therefore being unable to speak of his statuary ourselves, we appropriate the following able article from the *Daily Times.—Ed. P. & F. A. Journal.*]

The exhibition of statuary opened a few days since at the hall of the Church of the Divine Unity in Broadway, is worthy of more than the ordinary recognition by the Press, even of the special prodigies which, in endless succession, come to view in the great thoroughfare. The "Palmer Marbles" have, indeed, been heralded to the public by a preliminary correspondence between various influential citizens and the modest and grateful artist; but this is a hackneyed honor, which a wearied public is somewhat tired of, and disposed perhaps, to resent. In this case it has a meaning and deserves to be trusted.

The works on exhibition are twelve in number, and embrace specimens from the artist's first work in marble to his latest modeling in clay, including several species of composition—the bust from life, the medallion, the alt-relief, the sentimental-ideal, and the full-length figure which challenges a place in the historical school. The period within which these works have been produced is but seven years. They are the first fruits of an apprenticeship to art; but the apprentice shows himself in them to be a master.

A preliminary acquaintance with the sculptor will enhance the interest of these productions. Mr. E. D. Palmer is emphatically a son of New York, having first seen the light in the heart of the State, in the vicinity of Syracuse. He is not a veteran, but he is an old inhabitant to some of the western counties, which he travelled over in his youth pursuing the calling, to which he seems to have been naturally called, of a carpenter. Trusting to an appreciating pen which has traced his career in *Putnam's Monthly*, we learn that he was an adept in his business, employed on its nicer adjustments—from which one day at Utica, which he had made his permanent residence, he stepped into the profession of sculptor. His first trial of his skill was in cameo cutting. His first bust was put in marble in 1849. It is now on view in the Exhibition, where it is labeled on the catalogue an *Infant Ceres*—a chubby, happy child, modeled from an original, one of the artist's own family, three years of age. It is a pleasing work to look upon by the side of its companion, an *Infant Flora*, after a sister two years older, of the same stock. We soon find Mr. Palmer established at Albany, the place of his present residence, and in possession of a full share of attention which awaits positive merit at the Capitol from its intelligent citizens, and the winter throngs of the Legislature. Among the warm supporters of the artist, is Hon. Hamilton Fish, and to his, other names of political eminence may be added.

When we state further that the artist is in the youthful vigor of life, of manly stature exceeding the usual height, of a countenance and manner open and inspiring, we have said all that it concerns the public to know of a personal character.

It will be noted that Mr. Palmer has never been abroad—hardly, we believe, beyond the limits of his own State—an important fact in the career of a successful artist, and accounting, perhaps, for no inconsiderable portion of that success. He is a man of genius—not of routine or manufacture—impelled to his work by the cravings of his own nature. Of the value of that work to the country, the visitor to the Gallery in Broadway can have no doubt. With the desire to secure for the collection the attention which it so richly merits, we simply record our own observations and impressions.

On entering the large room we find a parallel or rectangular arrangement of the chief works, duly pedestaled or mounted, the full length statue of *The Indian Girl; or the Dawn of Christianity*, occupying the centre of the square, protected by an appropriate canopy of its own. There is much both of prose and verse in elucidation of this title in the catalogue, from which, reflection and improvement apart, we learn that it is intended to respresent the emotion of one of the aborigines, who had already received some instruction in Christianity, upon finding the symbol of the faith in the wilderness. The right hand holds a cross, upon which the maiden is intent; the left, falling to her side, supports a bunch of feathers which she has gathered in sport. The upper portions of the figure are bare, the drapery gathered in a mass below the waist, and adding, we think, a little heavily to the rather full, and appropriately so, contour of the figure in which the Indian characteristics are faithfully preserved. The face has the beauty of its class, but the high cheek bones and a certain natural heaviness forbid emulation with the lighter, more spiritual conquests of the Caucasian race. If this figure should lack interest with any minds, we are confident it may be traced to this paramount disadvantage. "A young Mohawk warrior!" West is said to have exclaimed when he first saw the Apollo of the Vatican; but he would scarce have found the Florentine Venus on his return home to the woods. The *Indian Girl* is a demure, placid, intent maiden; the expression is also attractive and engages the visitor. We must be pardoned if we do not fully respond to all the emotions challenged by its admirers in the catalogue in its typical representation of the Christian life. As a work of art the marble is handled with rare ability.

Turning to the right and left, we face the busts entitled *Resignation and Spring*. The former will be pronounced by most persons the favorite of the collection. We should prefer to call it *Contentment*. The storm of life has passed by and left that happy creature untouched. Resignation is born of suffering. Can that sweet face have been called on to endure? It is such a face as Greuze, happiest of the domestic school of painters, loved to paint—goodness personified—a truly genial nature—nature in abundance, not in excess, not deficient. The face has breadth and roundness, and is every way felicitous. This justice to animal life and health is a trait of the sculptor worth a thousand meagre mathematical lessons of the schools. It is a voice of nature—a mistress whom he has thus far followed with most commendable fidelity. You may feel that these heads were modeled from living men and women, and not from dead academical sketch-books.

Resignation is in the early maturity of womanhood; *Spring* is the ripeness of girlhood, a calm, tranquil, but inspiring maiden, her forehead of a type of intellectuality, in its height, of the American rather than the strictly classical allowance. There is in this, as in several of the other female heads in the room, a sense of latent humor, which we hold to be by no means the least truthful and winning among their many fine qualities. A medallion head of *Innocence*, modeled, we are told, without thought of an individual, but which turned out to be an excellent likeness of the sculptor's daughter—not a very remarkable coincidence for such fathers as artists should be—has this characteristic. It is an instinct of intelligence, like that "peace" of the Lady in Comus, "which goodness bosoms ever." These figures are purity itself.

This chastity of nature is again seen sublimated in expression, in different degrees, in the medallion, *A Dream of the Spirit's Flight*, partaking of immortality, leaving "the warm precincts of the cheerful day," but "casting one longing, lingering look behind," and in *The Sleeping Peri*, which is worthy to rest above the ashes of virgin innocence in the monumental chapel of a cathedral. Sleep, the image of death, is here the entrance to Heaven. The conception of the countenance is exquisite, in fear almost to waken the form which, in its weariness, is again typical of the grave. But the sculptor need not go to poet's "Peris" and "the Mythology of the East" for such a creation. The original is passing away from Earth daily. Ask the sympathetic mothers and sisters who cling to the room where this is separately shown if it is not so!

We pass to *Morning* and *Evening*, two of the medallions in which Mr. Palmer excels. It is the same female figure at the beginning as at the close of day, attended by a star, keeping an appointment with the moon, issuing from or retiring from her cloudy bed. The eagerness of movement in *Morning*—the parted lip, the passionate sensibility, excited by the keen air of the new-born day—the Greek type of countenance, the rushing hair, the peculiar curve of the eyelid; and again, in *Evening*, the folded eye, the meek bowing to rest, but with the promise of a kindling resurrection—these are images of life itself in these spirited creations.

There is a *Sappho* in alt-relief, a worn, consumed figure, literal in its agony and suffering.

A bust of the distinguished citizen Erastus Corning, life-like in its traits, of an elevated but natural expression, closes our enumeration of every object in the catalogue.

There is not only rare excellence in this collection, but rare promise of excellence to come. Let the artist adhere to his first mistress, Nature. He has imagination and poetry in invention. Let him cherish and cultivate them not the less; but let him remember, in his pursuit of the ideal, that this much-abused essence is only the better life, the true genius of the actual, the real in its perfection. It is to be found, in particulars, in nature, and happily, in the full freedom of development which prevails, most abundantly in American nature. Our sculptor has not gone far to seek it, and he has found it. His inspiration is American. If he continue faithful to its first revelations we have no fear of his genius perishing for lack of material in the Beautiful, though he never visit the classic shores of Greece and Rome. He is not ignorant, as the details of his works show—the hair, an ear, an eyelid, a hand, a foot—of the secrets of art-representation which the ancients discovered. They imposed laws upon art, or rather they discovered its limitations and its necessary resources; but for the main work, nature is the school and the heart of man—the beauty of form, of grace, of outward refinement; not less the qualities so worthily represented in these marbles, the interior charms of life—the light of the intellect irradiating the earthen vase—the sweet possession of the virtues.

From the Journal of the Phot. Soc.

METHOD OF TAKING NON-REVERSED POSITIVES.

To the Editor of the Photographic Journal.

Newcastle-on-Tyne, Aug. 11, 1856.

Sir,—The following method for taking *non-reversed* positives on glass will perhaps be found simpler and better than any hitherto suggested. No alteration of the dark-box, and only a very slight one of the plate-frame, is required.

Glass of uniform thickness must be used,—a point easily attended to. Supposing a lot a sixteenth thick to be selected, plane a rabbit a sixteenth deep round the edges of the plate frame, so that it will lie just so much nearer to the slide. Lay the plate in *collodion side up*, and on it place another thin plate, to which small triangular pieces of glass have been neatly cemented at the four corners. Close the box and expose in the usual manner. A rather longer exposure will be required than by the ordinary method, about 16 seconds to 12.

Blotting-paper should be laid on the projecting corners of the upper glass plate. The altered plate-frame can only be used for non-reversed pictures.

I am, Sir yours respectfully,
Thomas Worden.

From the London Art Journal.

SUGGESTION OF SUBJECT TO THE STUDENT IN ART.*

BY AN OLD TRAVELLER.

CHAPTER XI.

Labor and evermore Labor—Success to the Valiant—An Exception—The Wherefore—A Portrait of mournful Histories—Look before you leap—Buonamico and his Master—Oration to a Neighbor—The Artist requited—A new Professor—Bishop Guido disappointed—German reverence for Shakspeare—Portia to Bassanio—The Wedding of Petruchio—Shylock and Antonio—Ferdinand and Miranda—Repetitions of Pietro Perugino—Favorites of the Tuscan and Umbrian Masters—St. Francis Seraphicus—Santa Theresa—SS. Cosmo and Damiano—The Eremite Fathers—St. Hilarion—St. Efrem—St. Gualfardo—Santa Sofronia—Themes from Hebrew Scripture—The Vatican—The Uffizj—The Pitti—Bologna—Sienna—Gallery of the Florentine Academy—Modern Works—The four greater Prophets—Denunciation—The City restored—Ezekiel by the River—The Prophet waiting—Prayer of the Four Children.

Never does the excellent Vasari fail to mark with his best approval the progress of that artist who combines the habits of laborious industry with the attributes of a heaven-sent genius. To Francesco Francia, to Domenico Ghirlandajo, to Andrea Mantegna, to his own connection, Luca Signorelli, to Domenico Puligo, and to some few more, all of high distinction, has the admirable biographer accorded the—from him—exalted praise of thoughtful endeavor and studious application.

That these qualities were also exhibited by the great Masaccio, and by others whose names stand forth most prominently in the scrolls whereon Art's noblest stand inscribed, we all know. Leonardo da Vinci, at whose name all reverently lift the covering from their brows, looked ever favorably on the student evincing them; and though exempt by his miraculous endowments from such necessities as attach themselves, in the form of conditions, to the success of the less-richly endowed,—a category wherein all but one other master in Art (the divine Raphael himself, namely) must needs be comprised,—he was yet unusually patient of labor; and when we consider the perfection attained by him in pursuits, each demanding more than the total life of a gifted man, it becomes manifest that not even his brilliant versatility could have raised him to the eminence he gained in so many walks, had not his student-life been more than commonly earnest and laborious.

And to the steady worker, accordingly, it is, that Fortune, no less than the judgment of the world, as expressed by the Biographers, has awarded the palm of success. Some few exceptions there are to sadden us, and among them it has ever appeared to the present writer that Raffaellino del Garbo is one of the most melancholy. As a student, he gave evidence of the very best qualities: "held in the highest esteem among artists," says Vasari,† insomuch that his master, Filippo,‡ considered Raffaellino to be in some respects a much better painter than himself;" nay, even at a later period, the same unimpeachable authority says of him, after enumerating his various excellences—from all which the artists formed such flattering expectations of him, that he was long considered to be the first among the young painters of his time."

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* Continued from page 371, vol. ix., No. xii.

† See Vasari, "Lives of the Artists" (English edition), vol. ii., p. 473, *et seq.*

‡ Filippino, that is to say, the son of Fra Filippo Lippi.

How then did it chance that it is of this same Raffaellino we read the melancholy remarks that follow? Vasari has just completed the enumeration of admirable works performed by the artist in question, when suddenly he breaks forth after this fashion:—

"But his manner now deteriorated from day to day. Nor do I know to what cause we are to attribute this misfortune, for the poor Raffaellino could not have lost his power and the knowledge of his art; neither did he cease to be careful and industrious. Yet all availed him nothing." * * * * * And further, when speaking of a still later period—"It was with Raffaellino as though, feeling himself to have degenerated, he has become ashamed of himself, and felt disheartened—remembering the high expectations formed of him in his youth, and conscious of the great difference between his later performances and the works so admirably executed in his earlier days. Thus suffering, and becoming old before his time (Raffaellino died at fifty!) he declined more and more, departing to such an extent from the excellence of his first manner, that the works he produced no longer seemed to be by his own hand: daily forgetting some portion of his art, he descended at length from the ordinary frescoes and oil-paintings of his profession, to paint every kind of thing, even the meanest." * * * * "In this state of things all his distinction in Art finally disappeared, and his practice became debased to coarseness; sunk into the extreme of poverty, Raffaellino del Garbo miserably finished his life at the age of fifty, when he was buried by the brotherhood of the Misericordia."

And now what explication shall be given of this strange and mournful phenomenon?

I reply by another question:—Have you seen the portrait of this master, painted after a design made by his disciple, Bastiano da Monte Carlo? one of the many distinguished artists reared under his auspices—Bronzino being one of them. If you have, and have well considered its expression, I believe you will agree with me as to that I am about to offer. My theory is, that Raffaellio married on inferior wife; and if you recall the expression of that face, you must, I think, feel assured that no blight of light less complete, and less absolute, could have withered the soul of the artist to the condition you read there. What despair is in those eyes! What heavy hopelessness on all those features! Where is the consciousness of success, that should have kept its seal on that fine brow? It has been driven thence by that other and bitter consciousness; he has degenerated—he is degenerating. The burning pain of that destructive thought has graven its own dreary characters where the light of genius should have remained all brightly, and the ruin is such that you feel it to be final—there is no hope of redemption: you gaze sadly, and with increase of sorrow, until the lines turn indistinct, because your eyes have become surcharged with fears. You depart from the melancholy portrait saddened for the livelong day; and when you next approach it, more sorrowful than ever is the desolate aspect you meet. All the long and grievious history of our hapless Raffaellino's wrecked existence seems revealed in that mournful gaze; you comprehend it all, and you sympathise with all—but so full of grief are the weary details that you do not endure to dwell thereon, and you reveal them to none.

Confirmation, if any were required, of this unhappy conviction is but too amply given in the words of Vasari himself; among others to that effect he has the following:—"This artist was truly unfortunate in his connections, being constantly surrounded by people of mean habits and very low degree." And further—"Raffaellino studied drawing so industriously that there still remains a vast number of excellent designs by his hand, although his sons *are ever ready to sell them for the meanest price, and to any purchaser.*"

Now the excellent Giorgio was not himself of so "mean habit" as to speak thus of a man's connections simply for being poor, or of humble rank: they were consequently worse than poor and humble. Then, I ask you, would any sons worthy of their once-distinguished father have proceeded in such sort as to bring on themselves the reproof implied in the words of Vasari just given? and would the sons of a mother worthy to have been the companion of the man our lost and much-lamented Raffaellino *was*, not have proved incapable of meriting such? Without doubt they would, and my position is established. His unhappy choice in marriage was the bane of Raffaellino del Garbo—wherefore, I shall e'en borrow for this occasion the grave words of the learned, and, involving my trivial proportions in the doctoral robe, shall say—*Verbum sapientiæ satis est.* Look twice ere once ye marry, O ye men of nature's highest orders!

In the Gallery of the Academy at Florence is a short series of designs, attributed to an artist of career and character altogether different—Buonamico Buffalmacco, namely—to him "or his disciples;" and I incline to believe them by the disciples, since they have all the character proper to him who should take upon him to delineate the myriad pranks of that laughter-loving Florentine. Some of these have already been alluded to very slightly in a preceding chapter. The details are as follows:—Andrea Tafi, Buonamico's master, aroused his ire in boyhood by awaking him nightly, hours before the dawn, and setting him incontinently to his work. You now behold the consequences to Andrea.

From an ill-swept cellar, Buffalmacco has collected some thirty beetles; he has fastened to the back of each a tiny taper, and lighting these, has sent the creatures into his master's chamber by favor of a cleft beneath the door. Here the bottles are disporting themselves, to the inexpressible terror of Tafi, whom the lights they bear just enable you to see, half-rising from his low pallet, and gazing on the spectacle with pallid face. From the curtained window of a neighboring apartment, which commands the sleeping-room of his master, you furthermore discern, carefully peeping, the delighted visage of Buffalmacco, fully enjoying the success of his scheme, which did in fact avail for a time to frighten Andrea from that inconvenient habit of arousing his disciples before daybreak—Buonamico persuading him that those demons had appeared to avenge themselves on him for his pictures of Saints then painted, and affirming that over night work only did they possess any power of control.

You have next an act of retribution, similar in spirit and intent, but differing in the place and manner. We are still in the fair city of Florence, but no longer in the studios of Andrea Tafi. The dwelling before us is that of a Florentine citizen "of the meaner sort," a certain "weaver of wool" on whom his neighbors had imposed the name of "Capodoca," or "Goose head." Compelling his wife to spin yarn for his use, and keeping her at her labors through the greater part of the night, Capodoca thus disturbed the rest of Buffalmacco, now himself a master, and having his abode in close contiguity to that of the weaver, wherein you now see him engaged in making an oration, with all the gossips of the neighborhood for his auditory.

And the cause of that assemblage is on this wise. Wearied by the perpetual hum of the spinning-wheel, Buffalmacco has avenged himself on Capodoca by contriving a cavity in the wall of his bed-room, immediately over the hearth of the weaver: into this he inserts a long tube, filled with salt, and, choosing a moment when the wife of Goose-head, making soup for the consolation of her husband, has turned her attention elsewhere, he pours the contents of this contrivance as often as he thinks meet into the good woman's pot. This has now occurred so frequently, that the Goose-head's patience is exhausted, and he has been correcting his wife after a fashion but rarely approved by such as bear that name. Soundly beaten, she has roused the neighbhood by her cries; and here is Buffalmacco defending her, as it is well his part to do.

"Faith, comrade," says he, "you should be a little more reasonable. You complain that your dish is too much salted; but I marvel, for my part, that your good wife can see her way to the pot at all, or do any other thing that is right. Here do you keep her, spending the best of her night at the spinning-wheel: let her go to her rest at a reasonable hour, and you'll see that she'll then have her wits about her, and not make blunders of this sort."*

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* See Vassari, *ut supra*, voi. i. (English edition) p. 157.

The neighbors of this Goosehead agree with the painter; her husband is compelled to the same conviction, will he, nill he: the poor woman regains her natrual rest; the artist likewise remains undisturbed, and every one "lives happily for ever after."

Passing through Arezzo in the year, 1302, Buffalmacco was invited by the prince-bishop of that city, Guino, namely, to paint a chapel which then occupied the site where the Baptistry now stands in the episcopal church.

That work the artist had nearly completed, when a very curious circumstances occurred, and this, according to Sacchetti, was as follows:—"The bishop had a great ape of extraordinary cunning, the most sportive and mischievous creature in the world; this animal sometimes stood on the scaffold, watching the painter at his work, and giving a grave attention to the whole process. One Saturday evening, Buffalmacco left his colors, and on the Sunday, our ape, though encumbered by a log of wood, fixed on him to prevent his leaping about, contrived to get on the scaffold. Here he seized each vase of color in turn, mingled all together, as he had seen the painter mingling his materials, and plunging the pencils into this mixture, he daubed over every figure, and did not cease from his labors until he had repainted the entire work to his own liking; that done, he departed at his pleasure.

"When Monday morning came, Buonamico returned to his work; but finding his figures ruined, his vessels all heaped together, and everything lying in strange confusion, he stood amazed in sore dismay. Arriving at length at the conclusion that some jealous Aretine had worked him this woe, he bore his plaint to the bishop, who was much disturbed; but consoling Buffalmacco as he best might, persuaded him to renew his labors; and the mischief was repaired.

"But the bishop now gave him six soldiers, who were commanded to keep guard with drawn swords in the absence of the painter, and to cut down without mercy any man whom they might detect in the act of defacing the pictures.

"One day these men heard a strange rolling sound approach them, immediately after which they saw the ape clamber up to the scaffold, and seize the pencils. In the twinkling of an eye the new master had mingled his colors, and the soldiers beheld him set to work on the figures of Baffalmacco.

"They quickly summoned the artist, and showed him the malefactor, when they all stood watching the animal at his operations, although scarcely able to do so because they were in danger of fainting with laughter. Nor could Buonamico refrain from joining them, and, though much displeased by what had happened, he laughed until the tears ran down his cheeks.

"At length he betook himself to the bishop, and said—

"'My lord, you desire to have your chapel painted in a certain fashion; but the manner thereof does not please your ape, who is therefore painting it after a manner of his own.'

"He then related the story, adding, 'There was no need for your lordship to send to foreign parts for a painter, since you had the master in your house; but perhaps he did not know exactly how to mix the colors; however, since he is now acquainted with the method, he can proceed without further help. I am no longer required, seeing that we have his talents, but, with your lordship's permission, may return to Florence.'"

The bishop, heartily vexed as he was, could not restrain his laughter, and laughed the more because he remembered that the artist thus tricked by an ape was himself the most incorrigible of jesters. When they had talked and laughed over this new occurrence to their heart's content, the painter went to work for the third time, and the chapel was happily completed.

That done, Bishop Guido set Buonamico to paint on one of the walls of his palace an eagle on the back of a lion, which the bird had killed. But the lion being among the insignia of Florence, and the eagle that of Arezzo, the artist resolved to do the work after his own fashion: he caused a screen to be constructed around the scaffold, and then, painting a lion occupied in tearing an eagle to pieces, he departed to Florence, pretending to require certain colors which demanded that journey.

The bishop was furious when the affront put upon him was discovered; but the artist was ultimately forgiven. Some of the commentators on this passage in the life of Buffalmacco, tell us that Bishop Guido, being a Ghibelline, intended to affront the Guelfs, rather than the Florentines, by the work in question.

The admiration—or rather the reverence, the adoration—of the great and thoughtful German people for Shakspere, is well known to all who have consorted intimately with our Teutonic kinsmen; and the following passage, among many others, has more than once been cited as one eminently worthy of attention from the student in Art,—he will remember that it is Portia who speaks:—

"I pray you tarry, pause a day or two
Before you hazard, for in chosing wrong
I lose your compaay; therefore forbear awhile.
There's something tells me (but it is not love)
I would not lose you: and you know yourself
Hate counsels not in such a quality.
But lest you should not understand me well
(And yet a maiden hath no tongue but thought),
I would detain you here some month or two
Before you venture for me."*

Turn also to the words addressed by Portia to Bassanio, when he has chosen aright, and admit that both these passages are suggestive of exquisite pictures. May, he who shall faithfully render the fair being of Portia—that refined and beautiful head—that noble, yet graceful, and most feminine form—the winning sweetness of her attitude—the eloquent loveliness of her sweet lips, as she gives utterance to the god-like poet's words,—he who shall give us all this, I say, will endow the world of Art with such a form and face as its truest lovers are ever seeking, and may sometimes behold in their dreams, but do not often meet on canvas or in marble. Look to it, then, ye who aspire to be Sculptors or Painters; and if you produce only this one Portia of Shakspere, as Shakspere made, the world to come shall admit that you have lived to a worthy purpose.

Wholly different in manner, but presenting pictures equally vivid, and in all respects equally perfect in their kind, are the lines that follow. They are taken from the second scene in the third act of the "Taming of the Shrew." Gremio, one of the suitors to Bianca, the sister of Katharine, has just returned from the wedding of the latter, and is describing the events of the ceremony to the disguised servant, Tranio, whom he takes for his master, Lucentio. It is Gremio then who speaks:—

Gre.—Tut! she's a lamb, a dove—a fool to him.
I'll tell you, Sir Lucentio. When the priest
Should ask if Katharine should be his wife,
"Aye, by Gog's wouns!" quoth he, and swore so loud
That, all amazed, the priest let fall his book,
And, as he stooped again to take it up,
The mad-brained bridegroom took him such a cuff,
That down fell priest and book, and book and priest.
"Now take them up," quoth he, "if any list."
Tra.—What said the wench when he arose again?
Gre.—Trembled and shook;—for why, he stamped and swore
As if the vicar meant to cozen him.
But, after many ceremonies done,
He calls for wine. "A health," quoth he—as if
He had been aboard, carousing to his mates
After a storm—quaffed off a muscadel,†
And threw the sops all in the sexton's face,
Having no other reason
But that his beard grew thin and hungerly.
And seemed to ask him sops as he was drinking.
This done, he took the bride about the neck,
And kissed her lips with such a clamorous smack,
That at the parting all the church did echo.
I, seeing this, came thence, for very shame;
And after me I know the rout is coming.
Such a bad marriage never was before.
Hark! hark! I hear the minstrels.

The lines that follow have, in like manner, been proposed as a subject for the pencil, by German lovers of Shakspere, to the artists of that nation. The place is a public square in Venice;

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* "Merchant of Venice."

† Wine was at that time presented to the company immediately after the rite was performed.

the principal group consists of Shylock and Bassanio, who are joined by Antonio—Bassanio speaks:—

Bass.—This is Senior Antonio.
Shy. (*aside*).—How like a fawning publican he looks!
I hate him, for he is a Christian;
But more for that, in low simplicity,
He lends out money gratis, and brings down
The rate of usance here with us in Venice.
If I can catch him once upon the hip
I will feed fat the ancient grudge I bear him,
He hates our sacred nation; and he rails
Even there where merchants most do congregate,
On me, my bargains, and my well-worn thrift,
Which he calls interest. Cursed be my tribe,
If I forgive him.[*]

Of the dialogue between Ferdinand and Miranda highly effective expositions have come under our notice. Kaulbach has one in his "Illustrations to Shakspere;" and a cartoon, based on the following words, was commenced by one of his countrymen for the annual exhibition of a northern capital, in the year 1852, but was not finished in time to appear. It may perhaps have done so in the following year; but as respects this the writer has no information.

The portion of the words needful to our present purpose are these:—

Mir.—If you will sit down
I'll bear your logs the while—pray give me that,
I'll carry it to the pile.
Fer. No, precious creature;
I had rather crack my sinews, break my back,
Than you should such dishonor undergo,
While I sit lazy by.
Mir. It would become me
As well as it does you; and I should do it
With much more ease, for my goodwill is to it,
And yours against.
Pros. (*concealed in the distance*).—Poor worm! thou art infected—
This visitation shows it.[†]

Frequent reproach was incurred by Pietro Perugino, during the latter years of his life, for that he constantly reproduced the figures which had before appeared in his works. This happened more particularly on a certain occasion, when the Servite monks of Florence had commissioned Pietro to paint that picture for their high-altar, which had been commenced by Filippo Lippi, after Leonardo da Vinci, to whom it had first been offered, had departed for France, and which had been left unfinished when Filippo died.

Nay, when the work was uncovered, all complained of this repetition, whereupon Pietro defended himself in the lame manner that follows:—

"I have here painted you the figures that you formerly commended. They then pleased you well, and if they now displease you, so that you no longer extol them, what can I do?"

The reply was manifestly, "You can choose others." But our poor Pietro, discouraged just then by the fact that "the greatness of the name he had formerly acquired began now to be obscured by others,—that of his illustrious disciple among the first,"—discouraged by this, I say, he had not energy for new efforts, and the reproaches thus recorded were one of the results.

But others of his day might very justly have shared that odium with him, since, if they did not reproduce exactly the same figures, it is certain that they walked in a very narrow circle of subjects, and frequently came round to the one but lately treated. Hence the numerous St. Sebastians, that weary their admirers of all succeeding ages in every gallery—to say nothing of Holy Families, the mere distinctive titles whereof would make a long catalogue. Next in frequency comes St. Christopher, more particularly among the Tuscan and Umbrian masters—these last delighting, moreover, in pictures of cities, &c., taking shelter beneath the mantle of the Virgin; then follow St. Francis Seraphicus, receiving the stigma, and Santa Theresa in ecstacy—both frequently found among the works of the Italian painters. SS. Cosmo and Damiano are in like manner favorite subjects with the early painters. Few but will remember the example by Bicci di Lorenzo, and now in the Uffizj, where these holy physicians are in the act of replacing the amputated leg of a white patient by that of a dead negro, whose corse, deprived of the member required, is lying near. This is the picture painted for Antonio Ghezzi della Casa, in the year 1430—consequently, during the life-time of the painter's renowned father, Lorenzo di Bicci, who lived until 1452. The work was subsequently suspended on a pilaster of the Florentine cathedral, where it remained until 1842, when it was removed to the first corridor of the Uffizj, where it now remains, as above said. Neither will it be needful to remind our readers of a work on the same subject, left us by Fra Giovanni Angelico da Fiesole, now in the gallery of the Florentine Academy, with a companion picture—the story of five martyrs—also to be found there.

No objection needs to be taken to these subjects—certainly not; in themselves they are wholly unobjectionable: it is but of their too frequent repetition that the beholder becomes, weary, and if, from these—of somewhat kindred character—that follow, it shall please any student to select two, three, or more, let him feel secure from all fear of the reproaches showered on Perugino, as to a too oft-repeated story—always provided that he do not give us the self-same figures in all his paintings, as that excellent master was ultimately charged with doing.

St. Hilarion, the founder of the hermit life in Syria, as was his master, St. Anthony, in the Theban deserts, is not unworthy of the painters attention. Clothed in skins, and in the flower of his age, he is represented with a dragon beside him, in allusion to the legend setting forth his victory over a creature of the dragon kind, by the extension of the cross, which the anchorite holds in his hand, or has leaning against the side of a dark and low-browed sandy cave, within the shade of which he is most commonly found seated.

There is another Syrian hermit, St. Efram, or Ephraim, whose death, which took place in the Asturias, about the year 378 A.D., is delineated in a Byzantine picture of the eleventh century, still in the *Museo Cristiano* of the Vatican. The saint is surrounded by monks, with whom are certain of the poor, about to be left desolate by his departure, and bewailing their loss; in the background are scenes from hermit-life, depicted with much truth and force: this work bears the name of Emanuel Tzaufurnari—a painter not, at present, otherwise known to the present writer.

St. Nicholas von der Flue exhorting his compatriots to peace, at the moment when the freedom of all Switzerland was in danger of destruction from their discords, is a subject entirely worthy of memorial; it is interesting, and has the further merit of being in strict conformity with historical truth—that event having taken place in the townhouse of Stanz, as most readers will remember, during the year 1481.

A second interior will be well bestowed if you devote it to Santo Gualfardo, the patron of saddlers, whom it would ill become us, in this, our land of good horsemen, to leave entirely out of view. You are to paint him in the midst of his work, as that was conducted in his day—the early part of the twelfth century, and in the city of Verona, where it was that he exercised his craft, and ultimately died. This last event we may suppose to be not far distant; since there is a stone coffin descending towards him from the clouds, and now appearing to him through the open front of his booth, as he kneels in grateful adoration to receive it. This announcement of, and preparation for, his proximate departure, was sent to Santa Gualfardo, says the legend, in recognition of his sanctity, and was seen in its passage through the air by all Verona. Many of the citizens are, in fact, regarding the coffin with varying expressions, while others are gazing on the saint with infinite reverence and amazement.

Santa Sofronia, also of the eremite body, supplies us with a picture not unlike, in its details, to one which makes the closing scene of that ancient story, "The Babes in the Wood." In the desert—but a desert in name only, since the landscape is one of exquisite beauty—we have the holy woman prepared for death. She has pillowed her head on a fragment of rock, the cross is beside her, and all around are birds, each bearing in his mouth a portion of that leafy covering wherein they have already well-nigh enveloped her whole form, or else departing in search of material for the continuation of their pious office. Three young girls are kneeling at some distance, having been arrested by wonder and awe at the spectacle before them, when arrived thus far on a vist of duty to the saint: older persons, men and women, may vary your picture; these you may deal with as you like: but for them you can have but the warrant of your imagination—all previously given is part and parcel of the authorized, if we are not to say the authentic, legend.

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[*] "Merchant of Venice," Act i.
[†] "Tempest," Act iii.

The "Worship of the Lamb," an altar-piece, by the brothers Van Eyck, with its wings on either side, representing the long train of eremite fathers, from Paulus Eremita and St. Anthony downwards, will be fresh in the recollection of our readers. Mary Magdalen, and St. Mary of Egypt, although not always enumerated among the anchorites, likewise appear in this work, as having passed each a large part of her life in the wilderness. The landscape is remarkable for its period, and many of the heads—some of those belonging to the older men more particularly—are full of the most life-like truth and force of expression.

There is a picture of John the Baptist—the great forerunner of all anchorites—in the Pinacothek of Munich, which has been attributed by writers generally to Hugo Van der Goes;[*] but this is declared by Dr. Waagen to be an error, and Hans Memlieg is by many good judges considered to be the more probable author of the work. Of the St. John by Raphael, in the Tribune of the Uffizj, at Florence, none will need to be reminded. A picture of Mary Magdalene, by the townsman of Raphael, Timoteo della Vite, forms one of the glories of Bologna, and is in all respects admirable; the beautiful head bends with a touching grace, and the long flowing hair, falling to the feet of the saint, renders the mantle given her by the painter well-nigh superfluous. St. Paulus Eremita, and St. Anthony in the desert, painted by Lucas von Leyden, and now in the Lichtenstein Gallery, at Vienna, is also a work of merit. Many others, treating the same interesting series of subjects, return to the memory as these are recalled, but must for the present remain without notice.

It has ever been a matter of surprise to the present writer that the greater masters did not more frequently devote themselves to themes from the older Scriptures: I say the greater masters, because, it does not appear to me that any could attempt them without incurring the charge of reprehensible presumption. In my present office I have but rarely specified such, partly because the habits of daily life in our country bring that richest of treasures—for the artist whose aims are of the highest—constantly before his eyes, but chiefly because it is given to few, even of Art's most favored sons, to approach that sanctuary; nor to them, save only at moments recurring at dissant intervals, and but rarely accorded.

And so must it have been felt at all times; we cannot doubt it. Remembering well the instances of selection from the Hebrew Scriptures by the ancient masters—seeing one work after another rise to the eyes of memory, and omitting none, yet do we find them at points so widely distant, as compared with others, that we are justified in describing them as rare and few. As compared with subjects chosen from the lives of the Saviour and the Virgin, for example, or from those of Evangelists and Apostles, or of the Saints of the Canoe, how do they count? Pass in memory through any gallery you may please to select, and the result will be found as here stated. Then how narrow in the range of subjects; a few scenes from the lives of David, he first Patriarchs, or from one or two of the Judges, or from that of Judith, and we have named all. It is as if none, finally, ventured to look at these themes save through the eyes of the bolder adventurers preceding them.

Take, for example, the thirty-six or thirty-seven paintings constituting the gallery of the Vatican,[*] and say what you there find indisproof of what is here asserted.

The great Florentine Gallery of the Uffizj has some few: but these do but prove the rule, for amidst the vast numbers of that immense collection, how small, nay almost imperceptible, is this fragment. We have Esther before Ahasuerus, by Paolo Veronese; Giorgione has taken Moses and Solomon for his themes; Jacopo da Empoli has a sacrifice of Abraham; Botticelli and Allori give us scenes from the lives of Joseph and Judith; while Vasari, a master who rarely has justice done him, ventures on the hacknied subject of Elisha's miracle of the bitter herbs.

In the Pitti Palace is a vision of Ezekiel, from the pencil of Raphael himself; but not in all the large gallery of Bologna do I recall a work on the subjects in question by the greater masters,—with the sole exception of a Sampson, by Guido, who shows us the great enemy of the Philistines, triumphant from their slaughter, and causing water to flow from that jaw-bone of the ass, which has been his instrument. There is a St. Michael trampling the Demon, by Innocenzia a Imola, but this cannot be treated as coming strictly within the catagory we are now considering.

Nor do examples abound in the public gallery of Sienna, which comprises works from early in the 15th till towards the close of the 16th century. Francesco da Giorgio and Leandro—or perhaps, Francesco—da Ponte (Bassano), have pictures, I think, from the lives of Susannah and Joseph respectively, but I remember no more. Prophets and saints, used as adjuncts to the lives of Christ and the Virgin, of course excepted: these abounding here as elsewhere.

In the profoundly interesting gallery of the Florentine Academy we have again but few examples among the older masters; in the exhibition of artists belonging to the day they have appeared in larger proportion. Laban seeking his lost idols, and Dalilah shredding the locks of sampson, are among them, both by Crescentino Roti; these are production of some four or five and twenty years since.

The four greater prophets have been of late years chosen as themes for their study by German artists. They appear in a fresco, painted by Heinrich Hess, in the Allerheiligenkirche, at Munich; and in the Ludwigskirche, of the same city, there is a groupe of these prophets by Cornelius. Kaulbach's" Destruction of Jerusalum" exhibits them also; they appear in the clouds above the doomed city; and as an instance of a work from one of the greater prophets, all will remember the "Belshazzar's Feast" of our own compatriot. Themes yet untouched remain, nevertheless, and that in rich abundance, for him who feels himself permitted to approach the sublime source: and here, taken from the first among them, in order as in place, is a passage from Isaiah, grandly rendered by a young Venetian artist, whose cartoons did not proceed beyond the first design: the denunciation conveyed in the words, which will be found in the margin, was therefore never painted. In the same portfolio was an illustration of words from Jeremiah,[†] all unlike the ordinary tenor of that prophet's work, but the picture was none the less effective for that, and well merited completion. The words will be found below.[‡] From Ezekiel an attempt was

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[*] This work bears the date of 1472.

[*] Our readers will remember that the pride of the Vatican, as to extent, is in many gorgeous halls of sculpture; but—and what a but!—the small pictury gallery boast the Transfiguration" and the "Last Communion," to say nothing of all beside.

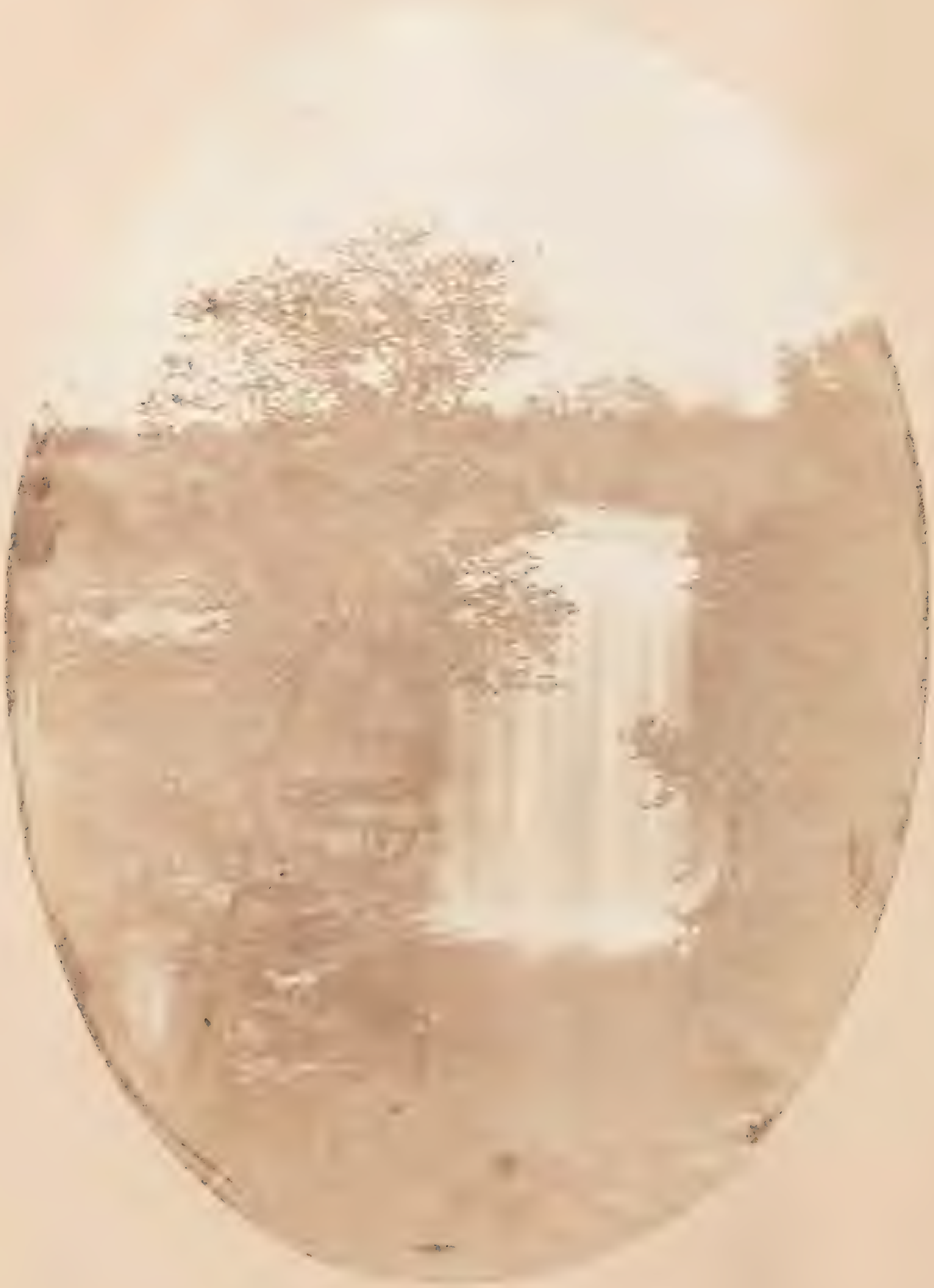
[†] ISA. c. xxix.,—"1, Woe to Ariel, to Ariel, the city where David dwelt! add ye year to year; let them kill sacrifices.

"2. Yet I will distress Ariel, and there shall be heaviness and sorrow: * * * *

"7. And the multitude of all the nations that fight against Ariel, even all that fight against her and her munition, and that distress her, shall be as a dream of a night vision."

[‡] JER. c. xxxiii.;—"10. Thus saith the Lord: Again there shall be heard in this place, which ye say shall be desolate without man and without beast, even in the cities of Judah, and in the streets of Jerusalem, that are desolate, without man, and without inhabitant, and without beast,

"11. The voice of joy, and the voice of gladness, the voice of the bridgroom, and the voice of the bride, the voice of them that shall say, Praise the Lord of hosts: for the Lord is good; for his mercy endureth forever: and of them that shall bring the sacrifice of praise into the house



MINEHAHA FALLS, MIN. TER.

Negative by A. Hesler.

made to show the prophet waiting by the river Chebar, as set forth in the earliest verses of the book; but "the great cloud," and "the fire infolding itself," and "the brightness about it," with the powerfully sketched figure of Ezekiel himself proceeding from the mass of "the captives," were all unfinished: what should come of an effort so ambitious it were thus not easy to determine; but it could scarcely be in the intention of the student to venture on more than a part of the vision. From the contemporary of Ezekiel—the prophet Daniel—the four children entreating to be "proved with pulse to eat and water to drink,"* rather than with "the daily provision of the king's meat, and of the wine which he drank," assigned to them, was the subject chosen; nor, so far as the cartoon had proceeded at the period to which we refer, was it likely to prove unsuccessful.

From the Jour. of the Phot. Soc.

PHOTOGRAPHIC SOCIETY OF LONDON.

ORDINARY MEETING.

November 6, 1856.

Professor Wheatstone, F.R.S., *in the Chair.*

The Minutes of the Special General, and Extraordinary General Meetings of the 3rd July were read and confirmed.

The following Candidates were balloted for, and duly elected Members of the Society:—

The Lord Bishop of Gibraltar, Dr. Lovell, The Rev. W. Gerrard Andrewes, F. T. Adams, G. Downes, J. Garle, E. C. Hennah, E. Monson, E. D. Pain, M. Pillischer, R. Tibbetts, — Vivian, J. W. Whedan, Esqs.

Mons. Belloe presented to the Society an Improved Pressure Frame, invented by himself.

Professor Delamotte exhibited Views of Oxford taken by himself.

Roger Fenton, Esq. exhibited Views in Yorkshire, &c. taken by himself.

Mons. Le Gray exhibited pictures of Clouds, &c. taken by himself.

J. W. Parker, Jun., Esq. exhibited Views of Naples, &c. by Mr. Bennett.

Mr. Paul Pretsch exhibited specimens of the latest productions of the Photo-Galvanographic Company.

Mr. Austen exhibited and explained a simple form of Plate-holder.

Mr. Pillischer exhibited and explained an instrument for opening and shutting the Lens.

Mr. Malone pointed out some resemblance between the mechanism introduced Mr. Pillischer, and that used by Mr. Claudet.

The Secretary announced that the Council of King's College had placed their rooms at the disposal of the society, and that a Soirée would be held there on Wednesday, the 17th of December.

Also that an Exhibition would take place at the same time and place as last year; the Council of the Society being unable to obtain rooms at a more favorable season.

Mr. Shadbolt.—I hoped this evening to have had the pleasure of laying before you Dr. Norris's (of Birmingham) Dry Collodion Process, of which some account was published in the Journal, I think, for July. Unfortunately the paper has not come to hand, but as I have been trying some experiments myself, and have had a great deal of communication with Dr. Norris, I would draw your attention to it for a few moments, to see whether any of our members may be working in the same direction.

In the short process which was published by Dr. Norris, he recommended that the collodion should be sensitized in the ordinary way in the nitrate bath, and then washed free from superfluous nitrate of silver in common water. He next poured upon it a further weak solution of gelatine, containing some proportion of alcohol. The theory he promulgated seemed to be sound, viz. that dry collodion is not so sensitive as moist, simply because the molecular condition of the former differed materially from that of the latter; but if we can render the collodion when dry, capable of returning to its original condition, that is, permeable by aqueous solutions, we ought to be able to produce a surface nearly, if not quite, as sensitive, as when in a moist condition.

I have tried experiments repeatedly, invariably with a certain amount of success, but Dr. Norris informs me that he can now nearly always command a favorable result, though he admits occasional failure. In the experiments I have tried with the process, I have never succeeded to my entire satisfaction; but I can always perceive the elements of success so indubitably present, that it is requisite merely to trace out the source of one or two disturbing influences, to obtain almost invariable success. The principal cause of failure, at first, was from my plates not being absolutely *chemically clean*. Plates kept for a length of time have a tendency to stain, in parts where there is the slightest extraneous matter. My principal difficulty at present, is, that in drying the plate the edges almost invariably dry more quickly than the centre, and more especially the upper edge; those parts that dry *rapidly* seem to produce a good and *clean* picture, but those parts that dry more slowly, produce a certain darkness in the picture. Dr. Norris was kind enough to send me a small negative, which unfortunately got broken in transit, but it is quite sufficient to show the *capability* of the process. There is a density and definition which you can obtain to almost any extent.

That picture, I am informed, was taken by a lens of 14 inches focal length and ¼ of an inch aperture. The time of exposure, on a bright day, was one minute and three-quarters. That is not unusually rapid, but it is as short a time as you would expose moist collodion, at the same season and under similar circumstances, with a lens of like focus and aperture.

With regard to the principle of using dry collodion, it appears to me that many circumstances point to the possibility of getting dry collodion equal to that of moist in rapidity of action. First of all, if we refer to the experiments of Dr. Taupenot, who uses an iodized albumen upon a surface of collodion, previously placed it in the nitrate bath, so as to produce a deposit of iodide of silver in a minutely divided condition, as a substratum, we find him stating that the rapidity of action is nearly as great as in moist collodion. Others who have tried experiments do not quite concur in that statement; but from experiments I have tried, I can easily imagine it *possible* that such result may be produced. One of our members, who is unfortunately absent, Mr. Wenham, made some experiments in this direction. After trying various modifications of collodion, it occurred to him that the base upon which the collodion was placed might have some influence. He therefore made use of some thin plates of ivory: he found (using the same collodion) that it was uniformly more rapid in its action than when upon a glass base. Upon examining these plates with a microscope, he found that the ivory presented a roughness of character not noticed by the unassisted eye. He then took great pains in polishing these plates, but found that the rapidity of action then disappeared. He repeated the experiment by roughening the ivory again as before, and reproduced thus great rapidity of action.

Again, Mr. Fox Talbot, in his experiment with the revolving wheel illuminated by an electric spark for a fraction of a second of time, obtained a distinct impression upon albumen; but he expressly points out the *necessity*, in order to attain such exqui-

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of the Lord. For I will cause to return the captivity of the land, as at the first, saith the Lord.

"12. Thus saith the Lord of hosts: Again in this place, which is desolate without man and without beast, and in all the cities thereof, shall be an habitation of shepherds causing their flocks to lie down.

"13. In the cities of the mountains, in the cities of the vale, and in the cities of the south, and in the land of Benjamin, and in the places about Jerusalem, and in the cities of Judah, shall the flocks pass again under the hands of him that telleth them, saith the Lord.

"16. In those days shall Judah be saved, and Jerusalem shall dwell safely: * * * *

"17. For thus saith the Lord: David shall never want a man to sit upon the throne of the house of Israel."

* Dan. c. i. v. 4–12.

site sensitiveness, that the sensitive paper should be placed upon another, previously excited and washed.

Now, these are circumstances which point to the fact that *the molecular condition of the surface which carries the sensitive layer* exerts a very strong influence on the activity of the actinic impulse. One other fact I think bears in the same direction,—that is, if we use a plate that is not perfectly clean, we always find the most intense development upon the *dirty* part of the plate. Where the plate is clean and well polished, there is not that excessive density, but wherever there happens to be a streak, there we find a dark mark in the collodion, of course producing a light one on the positive print.

I have been prevented from testing some of the collodion sent me by Dr. Norris; but the last new point he has discovered, which I think a *very important one*, is, that the collodion which succeeds best, as a general rule, is that which is old. He finds that the pyroxyline of which the collodion is made is in a very different condition in the old to what it is in the new. If you take a sample of new collodion, and precipitate the paper or cotton contained in it by water, you get a *stringy mass* that looks somewhat like the pulp of an orange; it is very adhesive; but if you take the old collodion, and precipitate by water, you get a white powder. Some change evidently occurs in the nature of the pyroxyline, at any rate in its molecular condition; and Dr. Norris finds that collodion in the powdery condition of the pyroxyline is precisely that which is most active when used dry.

Dr. Norris also informs me that he has discovered a method of producing the powdery state of the collodion in a very few hours instead of some months, as would be requisite for the change to occur naturally.

As I know that a great number of the members have been working at Taupenot's process, this may be a matter of sufficient interest to induce experiments in a certain direction, so that we may be all working towards one point, and when we take the field, we may have some very definite plan of operation.

Mr. Hardwich.—I do not agree with Mr. Shadbolt in thinking that we can expect a dry collodion process to have the same sensitiveness as wet collodion, inasmuch as the free nitrate of silver is washed away from the surface of the plate, and thus, even if the molecular condition of the two were the same, the rapidity of impression would be different. With respect to Dr. Hill Norris's dry collodion process, my experience of its merits is not great, but I am inclined to think it will not invariably succeed in giving a clean and intense negative. In that of Dr. Taupenot the plate, after being coated with albumen, to which a soluble iodide is added, is again passed through the bath, and by this proceeding a vigorous picture is almost certainly secured. I read in the translation of the French paper, that the second dipping in the bath may be omitted, but that in such a case the negative will probably be feeble. The change of physical properties in collodion, by keeping, which Mr. Shadbolt mentions on Dr. Norris' authority, is interesting, and it is useful to know, that an old collodion succeeds the best; but my own experiments lead me to believe, that when pyroxyline decomposes, certain bodies are generated, which have an effect upon the intensity of the image much in the same manner as grape sugar has. The honey preservative process ought theoretically to give good intensity, but in my first attempts with oxymel I did not succeed in setting a sufficient amount of blackness.

Mr. Shadbolt speaks of the stains produced by using dirty glasses as a proof of the superior sensitiveness of the iodide at those points, but I think that a dirty glass influences only the development of the image; sensitiveness and intensity being often opposed to each other, and the slowest collodion sometimes giving the blackest picture.

Mr. Shadbolt.—Some observations of mine relating to the use of gelatine upon the film, appear to have been misunderstood. The use of gelatine is to *prevent* the condensation of the film, to such an extent as to render it impervious to moisture; when present, the developing solution is able to permeate it, but if absent, the surface alone becomes moistened. With regard to the total absence of nitrate of silver on the surface of the collodion, there is one point I think we are apt to overlook, viz. that in the daguerreotype plate which is formed of iodide of silver in a pure condition, there is no pure nitrate of silver, and that it is as sensitive as most collodion, though perhaps not quite so sensitive as collodion may be made.

With regard to the observation of Mr. Hardwich, that the intensity and sensitiveness of the plate should be distinguished, I certainly admit that the most sensitive collodion is not that which makes the most dense picture. The consideration suggested concerning the dirty plate was intended to show that dirt, or even scratches, exert a material influence on the density of the deposit, though not necessarily from *chemical causes.*

Mr. Malone.—Mr. Shadbolt has taken for illustration the daguerreotype plate. I would remind him, that it is quite an open question whether it is composed of iodide of silver, and any argument drawn from that may be fallacious.

Mr. Hardwich.—There is another subject referred to by Mr. Shadbolt on which I wish to make a remark. Surely it is not the general impression that Taupenot's process is equal in sensitiveness to wet collodion? In my experiments it proved to be four times less sensitive, and it appears to me, that the collodion which Dr. Taupenot used as his standard of comparison, must have been very old and slow in action.

Mr. Briggs.—May I ask Mr. Shadbolt, what length of time these plates of Dr. Norris will keep? I made some experiments in the hot weather this summer. I kept them a fortnight, and when I took them out they were entire failures.

Mr. Shadbolt.—I have not had an opportunity of keeping them beyond 24 hours. I am perfectly satisfied, if kept from light and air, they will keep a considerable time. Sensitive plates of every description are considerably injured by exposure to atmospheric air; there is always some contaminating matter present.

The next meeting will be held on Thursday, December 4th.

BIRMINGHAM PHOTOGRAPHIC SOCIETY.

The members of this Society held their Second General Meeting at Phillip's Hotel, New Street, on Tuesday last, Nov. 4th.

The rules of the Society were read over and confirmed, and several new Members admitted.

Mr. Osborne communicated a new method of positive printing, by which means deep-toned pictures may be obtained without the use of either a gold or hypo-bath, and of a tint very suitable for landscapes.

Specimens were shown, and a discussion took place.

Mr. Maginn exhibited a large untouched portrait, toned with gold.

Mr. Beckingham exhibited some exceedingly beautiful prints by the photo-galvanographic process.

We are happy to say that this Society is progressing very satisfactorily.

DUBLIN PHOTOGRAPHIC SOCIETY.

The first Meeting of the present Session of this Society was held at the Royal Dublin Society House on Wednesday evening, the 5th November.

Sir Joscelyn Coghill, Bart., President, in the Chair.

A number of prints were exhibited by several members from negatives taken during the recess; foremost of which, in point of excellence, may be ranked those from collodion negatives by the President, Sir J. Coghill, and from waxed-paper negatives by Mr. Grubb, the Hon. Sec.

After a vote of thanks to the Royal Dublin Society for their kind permission to meet in their rooms during the Session, and the admission of several new members, the President addressed the Society, congratulated it upon its steady progress, and concluded by communicating his improved formula for the negative collodion process, as subjoined.

Mr. Sparling, of the London Society, exhibited a very compact camera, &c., for taking six of the small-sized stereoscopic pictures without going under cover; he detailed his process, also subjoined, (a dry one), and illustrated it by the developing of some pictures.

Mr. Smith (a member) exhibited some positives, printed by himself, which, after having stood well for several years, had lately, and rather suddenly, showed symptoms of decay. After some discussion on the probable cause which led to so unexpected a result, it was proposed to resume the subject at the next meeting of the Society.

SIR J. COGHILL'S FORMULA FOR NEGATIVE COLLODION, &C.

Nitrous acid	½ oz. by measure.
Sulphuric acid	½ do. do.
Jewellers' cotton	30 grains.

The cotton is immersed and well stirred in the mixed acids for 8 to 10 minutes, afterwards rapidly washed in many waters, the cotton being left only for a few seconds in each of the early waters; it is dried and teased out, and tested by leaving a slip of litmus paper rolled upon it for 5 minutes.

The collodion is made of this cotton as follows:—

Gun-cotton	5 grains.
Good æther	12 drachms.

Well shaken, and left for one or two days to settle.

The iodizing solution is as follows:—

Iodide potassium	3 grains.
Iodide ammonium	2 do.
Alcohol (strongest)	4 drachms.

The iodide of potassium must be previously finely powdered, and the whole frequently shaken during 2 to 3 days, and afterwards filtered for use.

This collodion, after iodizing, rapidly changes to a dark sherry color; but, in the course of 12 hours, this fades to a faint straw tinge, which remains unaltered for a long time. A sample iodized for four months showed little alteration.

The exciting bath, particularly if intended to produce good negatives of foliage, should be neutral, and the resulting negatives copper-colored.

MR. SPARLING'S DRY PROCESS.

Collodion, iodized with iodide of cadmium.

Nitrate Bath.

Water	16 oz.
Nit. silver	480 grains.
Nit. acid	5 drops.
Acetic acid*	1 drachm.

Preservative Mixture.

Water	6 oz.
Dextrine	2 "
Honey	1 "
Iodide potassium	1 drachm.
Alcohol	½ oz.
Acetic acid	1 drachm.

Mix, first, the honey, iodide potassium, acetic acid, and water; boil and skim, then add the dextrine, giving another boil; and, before the mixture cools, add the alcohol, stirring it in well. It should be made some days before using, and filtered until quite clear, and refiltered afterwards whenever it shows a want of perfect clearness.

Developing Mixtures.

A.

Water	1 oz.
Nit. silver	5 grains.

B.

Water	6 oz.
Pyrogallic acid	18 grains.
Acetic acid	½ oz.

About 2 drachms of solution B and 10 drops of A are mixed for developing.

After coating a plate with the collodion, allow the latter to nearly set before immersion in the nitrate bath. The plate, when sensitized, is transferred to an upright washing bath, which is replenished with fresh water for each plate. It may be left in this bath while another is being sensitized; the plate is washed under a tap or stream of water, and drained with a "shake." The preservative mixture is now poured on, and caused to flow in a wave about four times up and down the plate, then poured off into a separate vessel, and the plate placed immediately in the drying box, the drying being conducted quickly with a view of preventing blistering of the film.

The plate is next to be re-sensitized by immersion for one minute in the same nitrate bath, and washing and drying quickly as before. After exposure in the camera, the plate is to be thoroughly wet and the mixed developer poured on, increasing the amount of nitrate in the developer if required.

The drying box is made of tin plate; the under part is a water bath, warmed by a small gas light placed underneath; the plates are held in a nearly vertical position, resting on blotting paper at one corner. The preservative paper once used is sometimes diluted by mixing with the water on the plate, but it may be restored by adding to its strength and refiltering.

Mr. Sparling stated that plates prepared by this process may be kept for almost any length of time before being exposed, and afterwards developed at convenience. To prove the latter, he has deposited an exposed plate, which he proposes to develop at the next meeting of the Society.

LECTURES ON PHOTOGRAPHY,

Delivered in the Royal Institution of Great Britain.†

BY THOMAS A. MALONE, F.C.S.,

Director of the Laboratory in the London institution.

§2.

It is unquestionable that the *art* of photography originated in this country about the year 1802. Thomas Wedgwood, and not Josiah the famous potter, was the first person on record who conceived it to be practicable to use light and a chemically prepared surface in the depicting of natural objects by means of the *camera obscura*. In the carrying out of this conception he was aided by one of our most illustrious chemists, who has fortunately left us a complete account of the origin and fate of their early joint labours. The fellow-worker of Wedgwood, and the historian of the first days of photography, was no less a personage than Sir Humphry Davy. In the Journal of the Royal Institution of Great Britain for June 1802, will be found a paper entitled "An Account of a Method of Copying Paintings upon Glass, and of making Profiles by the Agency of Light upon Nitrate of Silver; with observations by H. Davy." It will presently be seen that this title hardly does justice to the important facts and principles thus for the first time enunciated. The Journal of the Royal Institution being now a comparitively scarce book, one would like to see this national memoir reprinted at full length in the pages of our own Journal: or what better tribute could we offer to the memories of the first founders of our art than to copy "by the Agency of Light upon Nitrate of Silver" some thousands of facsimiles of the typographical original, for distribution amongst the present world-wide-spread race of photographers? Or to confer upon it a still greater degree of material immortality, let us burn such copies into porcelain or glass—secure against the evil day that shall consign to the furnace the more perishable memorials of the art of Coster and of Guttenberg.

I have already stated that Wedgwood employed the camera in his photographic researches; and, as it appears to me, with a certain degree of success. Davy says, "The images formed by means of a camera obscura have been found to be too faint to produce, in any moderate time, an effect upon the nitrate of silver. To copy these images was the first object of Mr. Wedgwood in his researches on the subject; and for this purpose he first used nitrate of silver, which was mentioned to him by a friend as a substance very sensible to the influence of light; but all his numerous experiments as to their primary end proved unsuccessful." The latter part of this sentence had led some writers to assert, that Wedgwood entirely failed with the camera obscura. This is not true. He only failed to produce an effect "in any moderate time," as we learn from the preceding sentence. Now, much turns upon this phrase, "moderate time;" for we shall find as we go on, that M. Nièpce, who was the next experimenter with the camera, required "six to eight hours'" exposure to produce an image. Now, is eight hours a moderate time? If the reader decide that it is not, we must henceforward assert Wedgwood's undivided claim to priority, not only for the idea of using the camera, but also for proving that in time an image could actually be obtained by it. Davy adds, "I have found that the images of small objects, produced by means of the solar microscope, may be copied without difficulty on prepared paper. This will probably be a useful application of the method. That it may be employed successfully, however, it is necessary that the paper be placed at but a small distance from the lens."

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* Beaufoy's acetic acid fortis?—Ed. P. J.

† Continued from page 372, vol. ix., No. xii.

Wedgwood in his experiments employed paper or white leather moistened with a solution of nitrate of silver. The paper thus prepared underwent no change when kept in a dark place, but, on being exposed to the day-light, it passed through various shades of grey and brown, until at length it became nearly black. In the direct beam of the sun, two or three, minutes produced the full effect. In the shade, several hours were required; and light transmitted through different-colored glasses, acted upon it with different degrees of intensity. Red glasses had very little action upon it; yellow and green were more efficacious; but blue and violet produced the most decided and powerful effects.

The memoir says, "When the shadow of any figure is thrown upon the prepared surface, the part concealed by it remains white, and the other parts speedily become dark. For copying paintings on glass, the solution should be applied on leather, and in this case it is more readily acted on than when paper is used. After the color has been once fixed on the leather or paper, it cannot be removed by the application of water or water and soap, and it is in a high degree permanent.," The pictures thus obtained were kept in an obscure place; candlelight did not sensibly affect them. No attempts that were made to prevent the uncolored parts of the copy or profile from being acted upon by light, were successful; varnish was ineffectual, and even repeated washings did not remove the active part of the saline substance from the white parts of the leather; the whole surface became dark when exposed to the rays of the sun. Modern photography has been apt to sin in quite the contrary direction! In conclusion, Davy observes that the muriate (chloride) of silver is more sensitive than the nitrate, and that "both were more readily acted upon when moist than when dry—a fact long ago know." Finally, he says, "nothing but a method of preventing the unshaded parts of the delineations from being colored by exposure to the damp, is wanting to render this process as useful as is is elegant." Here the subject appears to have been left until Mr. Fox Talbot, at a later period, succeeded in altering the undecomposed silver compound by means of a strong solution of common salt, in which chloride of silver is soluble.

Accum also says, "When the solar rays are passed through a print, and thrown upon prepared paper, the unshaded parts are slowly copied; but the lights transmitted by the shaded parts are seldom so definite as to form a distinct resemblance of them by producing different intensities of color." Accum, who was "chemical operator" in the Royal Institution, repeats the statement that all attempts to fix the image had at that time proved unsuccessful.

In 1804, Dr. Young in his Bakerian Lecture relates that, by means of the solar microscope, he succeeded in throwing an image of the well-known colored rings produced by reflexion from a thin plate of air, upon paper dipped in a solution of nitrate of silver, and placed at the distance of about 9 inches from the microscope. In the course of an hour, portions of three dark rings were very distinctly visible, "and coinciding very nearly with the rings of violet light that appeared upon the interposition of violet glass.

With this solitary exception, we have no account of any researches in practical photography, from the time of Wedgwood and Davy, until M. Nièpce (of Chalons, on the Saone) commenced, in 1814, his experiments upon coatings of bitumen applied to metal and glass plates. We shall examine his processes briefly for the present, and then pass on to the early experiments of Talbot and Daguerre, previously to giving a detailed and practical description of the Daguerreotype process.

NOTES ON THE HONEY PROCESS.

To the Editor of the Photographic Journal:

Sir,—The following notes may be of use to amateurs, especially to those who have encountered difficulties in making trial of the preservative processes. None of them appear to be more simple than that of honey.

The basis of success depends upon being able to produce good collodion negatives, and to procure honey purely and carefully dripped.

Before proceeding to prepare honey plates for carrying to the country, a picture ought to be taken to ascertain that all the materials are in proper working order; and the quality of the honey ought also to have been tested, by developing at home some plates which had been covered by it for some days. With subsequent careful manipulation, and examination of the prepared plates, no real difficulty should be experienced.

For a long time I have followed a plan which may be thus shortly described:—After the plate is removed from the silver bath, it is allowed to drip, by holding it by the hand and placing it on a rest, with the corner downwards, for about two minutes.

The back and edges of the plate are wiped with blotting-paper, to remove all moisture, No washing is used to remove the free nitrate of silver. The quantity of water to be added to the honey depends upon its consistency, and may be two or three parts, so as to filter pretty easily. The honey is poured on along the edge of the plate (holding the corner with the hand), and kept moving, so as to cover the entire surface for one minute. Then float a second quantity in the same way, which may be used as the first covering for the succeeding plate. Again wipe off any moisture that may be on the back of the plate, and rest it on blotting paper in a dark airy place until it be placed in the travelling box.

Particular remark upon the length of exposure would be of no service. My practice with the same lens and materials has varied from 2½ to 15 minutes,—the extremes arising from buildings lighted up by sunshine, and from dark trees seen against a dull cloudy sky. There is no point on which the judgment requires to be more exercised than in the exposure. It must be determined by the season of the year, the hour, the character of the scene, and other matters which experience can alone discover. Many an amateur has attributed his failure to other causes, when the erroneous exposure was to blame.

The honey can be washed off the plates by immersion in a vertical bath of pure rain-water for five minutes; and that has been found sufficient for those kept from eight to twelve days.

The strength of the pyrogallic developer, to which will be added, according to the size of the plate, drops of the silver bath immediately before being poured on, must be suited to the season; and the best test of its strength, and of the proper exposure, is by the requisite intensity being obtained by the first application of the developer; fix by hyposulphite of soda; and no additional apparatus is required for the above method except a plain vertical bath.

The experienced photographer may smile at the want of novelty in these remarks, but they are intended chiefly for amateurs

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who have met with discouragments in trying preservative processes, but who may feel assured that certainty will be soon obtained by careful preparation of the honey plates, and a judicious examination before taking them to a distance.

Old honey has been always recommended, but it is not to be depended upon. The same quantity worked well for about twelve months, and then failures occurred now and then. It was some time before they were known to arise from the age of, and some change in, the honey. New honey was got and tested, and all difficulty disappeared. I have never found trouble in getting good honey.

The great advantage of the honey process is, that it can be resorted to at any time, without any previous laborious or troublesome preparation. No change in the collodion or silver bath is required.

Contrast the few hints above given to secure success by the honey process, with the lengthened, and almost conflicting details which seem necessary to enable a mastery over the collodio-albumen process to be obtained. That method seems to require a complicated and distinct procedure, without any very peculiar advantages; while the honey process can, as it were, be easily engrafted at any time upon the ordinary collodion process, without trouble or expense.

By covering the succeeding plate with collodion, while the former one is being dripped, twelve stereoscopic plates may be prepared in about an hour, and if the weather permits it, prepared plates can all be exposed and developed successfully within the time that will generally be required for ordinary journeys. My experience does not extend to plates kept for a very long period but no difference of treatment is required for those kept for twelve days, and few amateurs will require a larger limit. It is better to keep the prepared plates in an airy dark place; and an examination of them before the journey will show whether they have deterioated. If any of them show a doubtful appearance, their place can be quickly supplied, a convenience which other plans do not so easily afford.

I have made successful trials of the oxymel process, but naturally continued the same method, which previous practice had made easy.

Mr. Maxwell Lyte has thought proper to moot the question about the real originator of the honey process, and as Mr. Shadbolt has stated his disinclination to enter into controversy, some remarks on that point may be acceptable, especially to those who have all along watched carefully the advance of the honey process. Mr. Lyte gives no explanation about the grounds of M. de Poilly's claim, and I have no access to the 'Comptes Rendus.' But has not Mr. Lyte placed the matter beyond any doubt in so far as regards himself and Mr. Shadbolt? In the Journal for December 1854 he writes (p. 95), that "it is certain that Mr. Shadbolt is a discoverer quite as independent as myself." In legal phraseology Mr. Lyte has clearly put himself out of court; and for the best of reasons, as he described his idea in the 'Notes and Queries' of June 17, 1854, and Mr. Shadbolt announced his to the Photographic Society on the 6th of July following. Unless these gentlemen, living then far apart, drew their inspiration from the same source (a suposition which their character makes impossible), they were, beyond all cavil, as Mr. Lyte unhesitatingly acknowledged, independent discoverers, and under the circumstances they are in that view equally entitled to all praise, though they may not have conceived the idea exactly at the same time.

But while the preceding point is abundantly clear, the really important and interesting question to practical photographers remains to be solved—To whose writings are they actually indebted for the admirable advantages of the honey process, by which the facility is afforded of going to a distance, returning after a longer or shorter period, and then witnessing with delight the beautiful scenes they had anxiously hoped to record, sarting up before them into a marvellous and lasting existence? To Mr. Shadbolt it would appear that the palm should be awarded. The readers of the Journal must acknowledge, in meting out justice, that no real aid was received from the writings of Mr. Lyte in learning to preserve plates for a *lengthened* time with simplicity and ease. His original communication referred entirely to a "new and *instantaneous* process invented by him"[*]; and to plates being increased in sensitiveness, and kept, before exposure, in the Pyrenees for about an hour, and in England for four or five hours. Such was the nature of his first idea and discovery. On the other hand, the sole object and aim of Mr. Shadbolt was, from the begining, to bring the process of preservation of the plates for a lengthened time to a certainty[†]. While it is clear that they were both independent discoverers as to the use of honey, their primary objects were perfectly distinct and different. Mr. Lyte's process was to give an increased sensibilty for a *short* time; But Mr. Shadbolt's object was to preserve the sensibility, although diminished, for a *considerable period.* These gentlemen, therefore, at the time of first announcing their discovery, used the honey for different objects and with dissimilar ideas. In judging of the claim now urged by Mr. Lyte, it is indisputable, that, after Mr. Shadbolt had from the first announced the theory of long preservation of plates, Mr. Lyte is entitled to no merit whatever on that score, although at a subsequent time his communications about the use of honey involved, though they did not specifically describe, its advantages for long preservation of plates. While all will readily admit the elegant and learned accomplishments of Mr. Lyte as a photographer, he cannot, in consequence of Mr. Shadbolt's previous publication, disprove that he may not have derived from it the idea of lengthened preservation. In Mr. Lyte's letter of September 14, 1854, he first refers to his new instantaneous process, and concludes by "bearing testimony to the excellence of the invention of Messrs. Crookes and Spiller for the application of nitrate of magnesia to preserve the sensitiveness of the plate." They announced their magnesia plan in the same Journal (July 1854) in which Mr. Shadbolt's was made public. Why did Mr. Lyte make no allusion to the honey process? Undoubtedly it was not from Mr. Lyte's writings that the mastery over the honey process was taught; while the many that have pursued that method have carefully studied and reaped the benefit of Mr. Shadbolt's elucidations. Others have afterwards enlarged on the subject, but they have only followed up, in truth, what he discovered, without enunciating anything new or essential. On a consideration of the intricacy and trouble of other preservative processes, one is forced to ask—Is there any plan more simple and generally useful than that originally recommended by Mr. Shadbolt? And this is quite certain—that many practice it most successfully in its simplest form; and just as that becomes more widely known, will amateurs, especially, resort to the honey process, and abandon the more intricate and laborious, and therefore more uncertain and hazardous method.

I am, Sir, yours &c.,

J. S.

From the Jour. of the Phot. Soc.

MR. HARDWICH ON TONING POSITIVES.

The season having now arrived when photographers are beginning to print copies from the negatives which they obtained during the summer, a few words of caution on the subject of toning and washing may not be out of place. There are many who continue to use the single bath of gold and hyposulphite in preference to the more troublesome process by sel d'or and it is to these in particular that the following hints are addressed.

The first suggestion is, that the prints should be washed in plain water on taking them from the frame, and before immersion in the bath. When old hyposulphite was used in toning, the presence of free nitrate of silver was required to produce the effect; but since the introduction of salts of gold this has ceased to be the case. Nevertheless, on making the inquiry we find that many still work by the old plan, supposing it to be more simple and efficacious. Those, however, who have examined the subject chemically are of a different opinion, and unanimously advise the removal of the nitrate of silver before toning. Until this is universally done, the toning process will always be carried on more or less by *sulphuration*, and cases of fading will not be rare.

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[*] Journal, vol. ii. p. 30.

[†] Vol. ii. p. 5.

One great advantage of washing the print is that it indicates the real state of the toning bath; for if the action on the washed positives is not completed in a quarter of an hour or from that to twenty minutes, we may be sure that the solution is not in the best condition for giving permanent prints, and therefore more chloride of gold must be added. If the nitrate were not removed from the print, a coloring action would go on independent of the gold, and the operator might be deceived.

Those who are really interested in the art will do well to urge this point, and in the publications on photography which are constantly issuing from the press, to insist particularly upon the adoption of a secure method of printing; inasmuch as first impressions are often the most lasting, and a plan which has once found its way into general use, is not readily discarded, even although it be afterwards shown to be faulty in principle.

If the sample of chloride of gold contains the theoretical quantity of metal, each grain aught to tone somewhere about eight or ten positives or 5 inches by 4.

The washing out of the free nitrate is easily effected by laying the prints in a pan of water in a dark place, and giving them two or three changes until the fluid ceases to run off milky. They should be drained pretty closely before being transferred to the toning hypo, in order to avoid too great dilution of the bath, and as this dilution, must happen to a certain extent, a few lumps of fresh hyposulphite are to be added occasionally.

Cold water followed by boiling water is the plan of washing which is recommended as most secure, and if the pints, after blotting off, are dried by a fire or pressed with a tolerably hot iron, the tones, which are at first reddened by the hot water, will be nearly restored. It will often be found cenvenient to allow the prints to dry after the preliminary washing in cold water, and when a considerable number have been printed, to immerse them all together in the boiling water, and to iron them between sheets of filtering paper. The hot water extracts from the albumenized proofs especially, something which might cause a destructive mouldiness if the prints were allowed to become damp.

Lastly, before mounting the positives on cardboard, examine them carefully and reject such as appear to have undergone much *sulphuration* in the toning process. This is indicated by a cold shade pervading the whole image, and an aspect of yellowness, with loss of outline, in the lighter parts. Prints of this kind may not perhaps necessarily fade, but their chance of permanency under unfavorable condititions is so small that they are hardly worth preserving.

MR. SPARLING'S DRY PROCESS.

To the Editor of the Photographic Journal.

Sir,—You will no doubt receive a report of the last Meeting of the Dublin Society, at which I had the honor to develope some negatives, prepared by the dry process, and exposed the day previously; I forgot then to state that the time of exposure (at this season of the year) with a quarter plate double lens, stopped down to one quarter of an inch, ranged between 40 and 90 seconds.

I now intrude on your space, because I feel great pleasure in being able to prove the assertion of Mr. Hardwhich (to whom, for information, no person is more indebted than myself), "that too long an exposure is generally given;" this causes in all cases a feeble negative. Mr. Horne of Newgate Street (from whom may be purchased the same sort of camera which I exhibited) can tell you that I obtained a view of St. Paul's from one of the bridges by the dry process in five seconds, and I have not the least doubt that I shall obtain equally rapid results in the spring. I beg to enclose a few prints taken by the same process, with the time of the exposure written on each. The skies of all (except the one showing clouds) were perfectly intense, and for distance are equal to the wet, while for *certainty* the dry process when well and carefully manipulated carries the palm. There is another advantage belonging to the dry process, viz. the reproduction of negatives; *e. g.* the print I forward of the Crimean Banquet, was not printed from the original negative; there was such a demand for the proof, that I printed first a positive by the dry process, contact and direct exposure to light; 2ndly, I took six negatives in the same way from the positive, and I never printed from the *original negative at all.* I obtained the six duplicate negatives in less than two hours, and it would be difficult to distinguished between the original and the duplicates.

I remain, Sir,
Yours most respectfully,
Marcus Sparling.

NITROUS ETHER IN COLLODION.

To the Editor of the Photographic Journal:

Maison Ramonet, Bagnères de Bigorre, Oct. 22nd 1856.

Sir,—I had occasion some days since to redistil some ether in which I had previously dissolved some soluble paper, with the object of making collodion, and on examining the product, which had been distilled at a low temperature on a water-bath, I was struck by the presence of nitrous ether (C_4H_5O, NO_3). On further experiments I have become convinced that in all collodion, at least when freshly prepared, the above-named compound constantly exists. Now this seems satisfactorily to explain several of the phænomena connected with the use of collodion in photography. On the one hand the liberation of free iodine in the iodized collodion by keeping, is accounted for by the oxidation of this nitrous ether and its consequent acidifycation, and on the other hand it is not improbable that the presence of undecomposed nitrous ether in the film may act as an accelerant and, by its deoxidizing tendency may assist as it were the action of the freshly-prepared collodion. I believe this nitrous ether to be formed by either nitrous or nitric acid, which becomes mechanically inclosed in the fibre of the pyroxyline, and which, especially in a substance such as paper, becomes shut in by the contraction of the fibre under the influence of the acids, and is thus sealed up as it were from the contact of the washing water.

In putting forward this theory I would have is understood that it is not my intention to condemn or interfere with the theory offered by Mr. Hardwhich in his book, in which he supposes the presence of a highly-oxidized compound, formed in the ether itself, which re-acts on the iodides in the collodion, and tends to eliminate iodine. This theory, however, is hardly in itself sufficient to account for the amount and the rapidity of the changes which occur in iodized collodion.

Again, paper, as by the closer arrangement of its fibre it would be liable to inclose more nitrous acid than cotton wool when converted into pyroxyline, would in consequence produce a larger amount of nitrous ether; may not this suggest a reason for the asserted superior sensitiveness of paper collodion to that prepared with cotton? and at the same time, is it not worthy of experiment whether freshly-prepared collodion may not have its sensitiveness heightened by a proper addition of either nitrous ether, or of some of the compounds belonging to this class of substances?

I remain, Sir,
Your most obedient servant,
F. Maxwell Lyte.

WASHING PRINTS.

To the Editor of the Photographic Journal.

The Vicarage, Tilshead, Nov. 3rd, 1856.

Sir,—Mr. Delamotte recommends that prints, after toning and fixing, should be placed in a dish through which a stream of water can run, for six or eight hours. I have long adopted this plan, and with great success. Prints so washed have been to the East and back again unchanged, after a period of more than two years. I am, like many others, unable to command a stream of water, and have, in its absence, made use of a gutta-percha tube bent in the form a common siphon, the lower end being contracted by a cork with a slit on one side. A bucket of water and a dish are all that are required, in addition, to answer the purpose of tap and cistern. Of course the bucket can be refilled as often as may be required.

I am your obedient servant,
J. H. JOHNSON.

COLLODION TRANSFER VARNISH.

To the Editor of the Photographic Journal:

SIR,—I beg to submit to your readers a first-rate collodion transfer varnish, very simple to make, cheap, and effective.

Take $\frac{3}{4}$ths of a drachm of borax to 3 drachms of fine orange shellac, put them into a jar and pour $\frac{1}{2}$ a gill of boiling-hot water on them, and stir till dissolved, when bottle off for use, and colour with lamp-black, when wanted,—or any other colour may be chosen by the artist, as browns, black, purple, crimson, green, blues, bronze colours, or any other colour that is opaque, and finely ground in the varnish.

Method of Using.—Having mixed into the varnish the colour or tint wanted, coat the collodion film with a soft camel hair brush charged with the coloured varnish, and see that it is dry before fixing on the sheet of paper. Whilst this is drying, take a sheet of thin unglazed writing paper and coat it with the same coloured varnish till it is equally damp; and, whilst yet wet, stick it on the picture, and be sure to press out all air, and press them firmly together and set it aside to dry. When dry, put it into water overhead till the paper is damp, then gently raise up one corner, and if the collodian film is attached to the paper and leaves the glass freely, raise it gently up, when the picture will be found firmly fixed to the paper. All that now remains to do is to lay the paper to dry gradually. To ensure a flat and uniform sheet, it must not have heat applied, or it will cause the paper to crumple up and spoil the flat surface.

I may remark, that by this mode the positive picture can be used for albums, scrap-books, &c.; and by the variety of tint attainable, much beauty will be the result. This has not hitherto been attempted in transfers, and the process is so simple, that no one can fail with it.

Yours respectfully,
JNO. BROWN.

For the Photographic and Fine Art Journal.

NEW BLACK VARNISH.

DECEMBER 29, 1856.

DEAR SIR:—Many thanks for your attention. I enclose $6 which please acknowledge. I notice in the last Journal some remarks respecting the "Cracking of Black Varnish," and I wish to inform you of a varnish which I make for my own use, and which I have used for other purposes than ambrotyping for many years. I think you might make a good thing by selling the receipt or making the varnish; and I shall be happy if you find something new and useful in the recommendation of my varnish, which is as follows:—I break up into small particles common black sealing-wax, and pour on it a sufficient quantity of spirits of wine, to make the requisite thickness; place the vessel containing the above ingredients either in hot water, or on a moderately hot stove, and stir occasionally with a glass rod; in a short time the sealing-wax will be melted and the varnish is ready for use. It dries in a very short time and becomes exceedingly hard and tough; I have never seen it crack. By mixing red sealing-wax, you obtain that rich brown given in albumen prints. I feel convinced that a trial will convince you that this varnish is most excellent. I do not ambrotype much, but take a great many stereoscopic pictures for amusement. You can apply pink varnish behind the face, hands, &c., in fact make any color with different colored wax. Please mention in your next Journal what you think of this; if you turn it to account and make money by it, you can remember me in your will. There is another photographic matter which I should like to have your opinion upon. Some of our Canadian photographers obtain in the States some excellent photographs, and hang them up at their doors in show frames and pass them off as being their own work. Is not this very discreditable to all parties concerned. I wish you would notice this in your Journal, and give your opinion for the benefit of those who honestly and with artistic feeling, try for what is desirable in the art of photography, hoping you will excuse this sermon, and wishing you the compliments of the season.

I am, Dear Sir, yours in faith,
WILLIAM ARMSTRONG,
Photographist and Civil Engineer.

[We have concluded that the best use to which we can put the communication of any friend, is to print it entire for the benefit of our subscribers. Our position as Journalist makes it our duty to give freely whatever is freely given us for the benefit of the Photographic Art, and we have not the slightest doubt that our liberal correspondent will be equally benefitted by this disposition of it. The practice of purchasing fine photographs and exhibiting them as their own, is not confined to the Canadian photographists, but is also common in the United States. It is certainly not honest, to say the least, and very reprehensible. No man having the least self-respect, would be guilty of the act.—ED.]

For the Photographic and Fine Art Journal.

WHY?

MR. SNELLING:—I have been for a long time a subscriber to your Journal, and have been pleased with your extracts from the practical works published in England and France, in regard to our beautiful Art.

I have looked over the columns for many weary months, for some practical communications from the Artists in this country, and I am constrained to ask why is it that so few among the profession deem it worthy of their time to send you some practical hints for the benefit of your readers, who are supposed to be generally those who are engaged in the Art of Photography. In England, as soon as an artist has made any valuable discovery, he forthwith goes to his neighbor and gives him the benefit of his discovery, and then publishes it in some Journal, solely for the purpose of having the same favor bestowed upon him when that neighbor shall have made any improvement. By that means, all the Photographic Artists in England are immeasurably ahead of us in their productions.

I write now mainly to elicit, if possible, a new feeling among those who follow the Art as a profession; and there are some now who might be named with much honor, for their works do them much credit.

It had been hoped indeed, that the Photographic Art would not descend so low, as that peculiar branch known as the Daguerreotype, for it really approaches much nearer pure Art than any; and if properly fostered and cared for, it will ultimately claim a niche in the temple of the Fine Arts.

In Europe, the Artists are now contending for that palm, and true merit is awarded it, we shall soon learn of its claiming the high honor of associating with the creations of Raphael and a Michael Angelo. I wish therefore that such persons who are eminent in the profession, would just step out of their dark chambers and give us light; for that light so reflected, will surely be transmitted back again to them in an effulgence of delight, that they need not be ashamed to bear.

Need I name them, when it is only necessary to call to mind such as Turner, Moulton, Whipple, Barnard, Glosser, Langdale and others, who have pursued the Photographic Art with great success, and whose productions evince much skill.

Now if some of these should deem it worthy of themselves to communicate such of their experience as would lead many in the right path of success, it would not detract from their well earned fame, but would, on the contrary, be adding much more to their well-deserved reputation. Trusting that this hint will only be necessary, I await with much impatience for a consumation from some one eminent in the Art.

It has been suggested by some to form a Photographic Society in this country, on the plan of those in London and Paris; and it would indeed become a valuable institution, and the time will soon come when this may be done with great certainty of success. If the proper persons would interest themselves in the formation of such a society, it could be accomplished. With the hope of hearing suggestions from others,

I am yours, very respectfully,
N. G. Burgess.

THE GRISWOLD PATENTS.

ALBUMENIZED COLLODION.

To all to whom these Letters Patents shall come:—Whereas, Victor M. Griswold, of Lancaster, O, has alleged that he has invented a new and useful Improved Collodion for Photographic Pictures, which he states has not been known or used before his application; has made oath that he is a citizen of the United States, that he does verily believe that he is the original and first inventor or discoverer of the said collodion, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said Collodion and praying that a patent may be granted for that purpose.

These are therefore to grant, according to law, to the said Victor M. Griswold, his heirs, administrators, or assigns, for the term of fourteen years from the fifteenth day of July, one thousand eight hundred and fifty-six, the exclusive right and liberty of making, constructing, using, and vending to others to be used, the said Collodion, a description whereof is given in the words of the said Griswold in the schedule hereunto annexed, and is made part of these presents.

In testimony whereof, I have caused these Letters to be made Patent, and the seal of the Patent Office has been hereunto affixed.

Given under my hand at the City of Washington, this fifteenth day of July, in the year of our Lord one thousand eight hundred and fifty-six, and of the Independence of the United States of America the Eighty-first.

Robert McClelland,
Secretary of the Interior.
{ L. S. } C. Mason,
Commissioner of Patents.
Countersigned and sealed with the Seal of the Patent Office.

THE SCHEDULE REFERRED TO IN THESE LETTERS PATENT AND MAKING PART OF THE SAME.

To all whom it may concern:

Be it remembered that I, Victor M. Griswold, of the City of Lancaster, in the County of Fairfield, and State of Ohio, have invented certain improvements in the art and mode of taking Photographic Pictures, and I do hereby declare that the following is a full and exact description thereof:

The nature of my invention consists in an improvement in the photographic art of taking pictures:—To one quart of collodion prepared in the usual way or manner, I add three ounces of a solution prepared thus: the clear solution which results from the white of eggs which have been well beaten, and one equal bulk of pure soft water. When this is added to the collodion, it is thrown to the bottom in long stringy white masses, which after a few days, imparts to the liquid albuminous properties, rendering the film closer in texture, and bringing out all the minor details more sharply and perfectly than by the ordinary collodion, and giving to the picture a glossy and sparkling tone, unlike any produced by other means.

Another method which I frequently adopt is this: albumen as above without water, to which is added iodide of potassium forty grains. This throws down the albumen in jelly-like masses, and when added to the collodion, not only iodizes it, but produces the same effect upon the collodion as by the formula above. Also another method:—one ounce of chloroform, to which is added one-half ounce of albumen, prepared as above, iodized; this forms also a soft semi-transparent jelly, which on being added to the collodion, produces perhaps the best effect of any of these preparations. This addition of albumen also answers a far better purpose than any that has hitherto been employed for freeing old samples of collodion from free iodine held in suspension by which they can be rendered as clear and limpid, as they were when first mixed.

What I claim as my invention, and desire to secure by Letters Patent, is the addition of albumen to collodion in the manner, and for the purpose herein and above specified.*

V. M. Griswold.

Alfred McVeigh, } *Witnesses.*
J. C. Henley, }

BROMO-IODIZED BITUMEN.

To all to whom these Letters Patents shall come:—Whereas, V. M. Griswold, of Lancaster, O., has alleged that he has invented a new and useful Bituminous Ground for Photographic Pictures, which he states has not been known or used before his application; has made oath that he is a citizen of the United States, that he does verily believe he is the original and first inventor or discoverer of the said invention, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said invention, and praying that a patent may be granted for that purpose.

These are therefore to grant, according to law, to the said V. M. Griswold, his heirs, administrators, or assigns, for the terms of fourteen years from the twenty-first day of October, one thousand eight hundred and fifty-six, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said invention a description whereof is given in the words of the said Griswold, in the schedule hereunto annexed, and is made part of these presents.

In testimony whereof, I have caused these Letters to be made Patent, and the seal of the Patent Office has been hereunto affixed.

Given under my hand at the City of Washington, this twenty-first day of October, in the year of our Lord one thousand eight hundred and fifty-six and of the Independence of the United States of America the Eighty-first.

Robert McClelland,
Secretary of the Interior.
{ L. S. } C. Mason,
Commissioner of Patents.
Countersigned and sealed with the Seal of the Patent Office.

THE SCHEDULE REFERRED TO IN THESE LETTERS PATENT, AND MAKING PART OF THE SAME.

To all whom it may concern:

Be it known, that I, Victor M. Griswold, of Lancaster, in the County of Fairfield, State of Ohio, have invented a new and valuable process, for sensitizing bitumen for taking photogenic pictures on paper or other material, and I do hereby declare that the following is a full and exact description thereof.

The nature of my improvement consists in the preparation of bitumen by the following processes:—Dilute asphaltum varnish (which has been prepared by boiling one-half gallon linseed oil, one pint japan varnish, and five or six ounces asphaltum, to such a consistency that it will, when cool, roll into a hard ball), to a proper consistency with spirits of turpentine, add to eight ounces of turpentine, one-half ounce of bromine, and one ounce iodine, a small quantity at a time, as they unite with great heat, and must be managed with care. When thoroughly united, this is bromine iodized turpentine, which, added to a half gallon bath of the prepared bitumen, forms what I call bromine-iodized bitumen.

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* We should like to know from what time Mr. Griswold dates his discovery of this combination, as the value of his patent depends entirely upon that circumstance.—*Ed. P. & F. A. J.*

Or I take finely pulverized bromide of potassium one hundred and fifty grains, to which add one hundred and fifty grains crystalized nitrate of silver, dissolved in four ounces of distilled or pure soft water. Wash the precipitate through nine or ten changes of water. Filter dry in a dark place. Put the dry powder (bromide of silver) into a long eight ounce vial, containing four to six ounces turpentine, and add to it one and a half ounces iodide of potassium very finely pulverized. This will form the bromine iodide of potassium and silver in turpentine, which add to the half gallon of bitumen prepared as above.

Bitumen sensitized as above, will give impressions without the aid of collodion, and renders a collodion film more sensitive, and gives a more sharply defined image than by any other process, and may be used for taking pictures on paper or any other smooth hard substance.

What I claim as my invention, and desire to secure by Letters Patent, is taking photogenic pictures on paper or other substance prepared by the above described, or other equivalent process substantially the same, and producing the desired effect.

V. M. Griswold.

P. B. Ewing, } *Witnesses.*
G. Steinman, }

OUR ILLUSTRATIONS.

The first illustration in our present number, is a copy of the Statue of Flora, on exhibition at the New York Crystal Palace. The negatives are by Messrs. Whipple & Back of Boston. The process by which the positives were printed is the same as that for the December photographs, with the exception that the *fixing* bath is simply hypo-soda; one pound to four quarts of water.

The subject of our second illustration, is the

Falls of Minnehaha (Laughing Water).

Negatives by A. Hesler.

Lovely Minnehaha! we shall always cherish thy memory with fond affection, for it was around thee and about thee we passed many a boyhood hour, angling in thy pure waters, or gathering flowers along thy banks to deck the brows of sisters dear, over the memory of one of whom we have shed the silent tear, while the other lives still to gladden our heart, and to read these lines. Oh! well will she remember our rambles on the violet banks of Minnehaha. The following description we cut from that excellent paper, "*Life Illustrated*," published by Fowler & Wells, New York city:—

"The Falls of Minnehaha, or Laughing Water, now rendered classical by Longfellow in his great Epic Indian Poem of Hiawatha, are situated in the vicinity of Fort Snelling, Minnesota. The rivers of Minnesota are filled with picturesque rapids and small falls, many of them distinguished for their wild and romantic surroundings. The most noted among them, perhaps, is this fall of 'Laughing Water.' It is now fast becoming the resort of tourists, and its fame, spread by Longfellow the world over, will necessarily always make it an object of especial interest to the traveller. One natural peculiarity it possesses is deserving of mention. The visitor is enabled by a ledge of rocks to pass behind the falls, where he finds a recess beneath the bed of the river, extending back nearly fifty feet. Standing in this recess, and looking out through the water at a time when the sun is shining upon it, an effect is produced transcendently beautiful. The feathery, leaping, laughing water is laced and interlaced with rainbows. A thousand hues seem blending and playing upon the surface. The waters are dyed in colors. A more beautiful sight can scarcely be found. After viewing these prismatic effects, the tourist can pass round and out from behind the fall at the opposite side from which he entered. We refresh the memory of our readers with a passage from Hiawatha, descriptive of the scene:

"Only once his pace he slackened,
Only once he paused or halted,
Paused to purchase heads of arrows
Of the ancient arrow-maker,
In the land of the Dacotahs,
Where the Falls of Minnehaha,
Flash and gleam among the oak trees,
Laugh and leap into the valley.

"There the ancient arrow-maker
Makes his arrow-heads of sandstone,
Arrow-heads of chalcedony,
Arrow-heads of flint and jasper,
Smoothed and sharpened at the edges,
Hard and polished, keen and costly.

"With him dwelt his dark-eyed daughter,
Wayward as the Minnehaha,
With her moods of shade and sunshine;
Eyes that smiled and frowned alternate,
Feet as rapid as the river.
Tresses flowing like the water,
And as musical as laughter;
And he named her from the river,
From the water-fall he named her,
Minnehaha, Laughing Water.

"Was it here for heads of arrows,
Arrow heads of chalcedony,
Arrow-heads of flint and jasper,
That my Hiawatha halted
In the land of the Dacotahs?

"Was it not to see the maiden,
See the face of Laughing Water
Peeping from behind the curtain,
Hear the rustling of her garments
From behind the waving curtain,
As we see the Minnehaha
Gleaming, glancing through the branches,
As one hears the Laughing Water
From behind its screen of branches?"

From the Journal of the Phot. Soc.

PHOTOGRAPHIC QUERIES AND ANSWERS.

To the Editor of the Photographic Journal.

Sir,—Will you be good enough to give me rules for determining—

1. The area a lens will cover free from spherical aberration.
2. The area a lens having no spherical aberration will cover.
3. The focal distance of a combination of lenses.
4. Are parallel, convergent, or divergent rays concerned in casting an image through a lens? that is, which or what rays should a perfect photographic lens be capable of refracting to one focus?
5. Why do treatises on photography say that the front lens of a portrait combination, when used singly, should have its plane surface towards the object, whereas Sir D. Bwewster (a good authority, I suppose) distinctly states that if used to form an image with its convex surface towards the object, the spherical aberration of a plano-convex lens will be $\frac{1}{4}$th of that in the other position? When the front lens is a double convex, I can understand that it should have its least convex side towards the object. I am, Sir, yours, &c.

Scotograph.

1 and 2. Theoretically, the defects of oblique pencils begin the moment we leave the axis, or centre of the field, and increase the further we go. The answer to these questions presupposes an answer to this other question — What amount of defect is to be considered too small to notice? a question best answered by practice. But even if this question were answered, the area covered would depend upon circumstances very materially; for instance, on the diameter of the lens compared with its focal length, since all defects of this kind increase with the diameter of the lens, supposing the focal length given.

3. In the case of a number of lenses in contact, where the

total thickness is small compared with the focal length, if $f_1 f_2$ &c. are the focal lengths of the individual lenses, reckoned positive when the lenses are of the convex, negative when of the concave kind, and F be the focal length of the combination, it is well known that

$$\frac{1}{F}=\frac{1}{f_1}+\frac{1}{f_2}+\&c.$$

If the lenses are very thick, or are separated from one another by considerable intervals, the focal length in any particular case may be easily calculated by the formulæ of common optics.

4. Of course it is slightly divergent and nearly parallel pencils that we are concerned with in the case of photographic lenses; *i. e.* the pencils which fall on the first lens are slightly divergent, and may be regarded as parallel.

5. Sir D. Brewster is speaking of the spherical aberration of direct pencils, whereas in photography we have to pay special attention to the defects of oblique pencils, that a sufficiently large field may be sufficiently perfect; and therefore the discrepancy is only apparent.

H. K., in printing positives by the sel-d'or process, finds that they turn yellow, and lose their purple tones on immersion in the fixing bath of hypo; after washing in water, they appear spotted and imperfect. This difficulty has never occurred to us, and we can only suggest the following precautions:—to employ the papier Saxe, since it has been stated that the sizing of some photographic papers interferes with the result,—to use pure chloride of gold in making the sel-d'or,—to protect the prints from the light,—and not to keep them about too long between the toning and the fixing bath. 2. The addition of pyrogallic spirit to collodion will usually remove the red color, but it is a mistake to suppose that the sensitiveness will be retained for an unlimited time. 3. We do not recommend that iodide of ammonium should be kept in solution even in methylated spirit; the iodizing liquid may remain colorless, but it will become acid to test-paper

F. R. writes to ask for further information on the negative printing process by citrate of silver. Having succeeded with it quite to his satisfaction in June last, he prepared a quire of paper, and put it away, but is now disappointed to find that the result is not so good as at first, the prints coming out stained and spotted during development. We have heard of the same thing happening to those who use serum-of-milk paper, and the impression we entertain is, that papers prepared in either way are liable to become mouldy unless kept perfectly dry. Any of our readers who have had experience in this matter will oblige us much by communicating the results, that the difficulty may be cleared up.

Scotograph.—1. We often have complaints of "nitrate baths going suddenly wrong, without any previous warning, and giving hazy pictures;" but it is probable that the evil is generally laid to a wrong cause. During the hottest weather of summer we have known negative baths to continue working well for weeks together, although there is always a greater tendency than usual to fogging when the thermometer stands high. The best remedy will be to add iodine to the collodion, and more acetic acid to the developer. 2. To keep the plates perfectly clear during development has always been the difficulty in the nitrate of magnesia preservative process. If you cannot succeed, try what *honey* will do, using the best virgin honey poured directly from the comb.

Amateur.—Do not attempt to develope negative pictures by *dipping*. If you use plenty of acetic acid, you will find no difficulty in covering the plate evenly before the action begins. Try the following formula;—Beaufoy's acetic acid 1 fluid ounce, pyrogallic acid 12 grains. When required for use, dilute 1 fluid drachm with seven drachms of water. The consentrated solution will keep for two or three weeks without much discoloration.

S. A. T.—Minute specks thickly studded on collodion plates are usually caused by small particles in suspension in the collodion, and the best remedy is to allow the fluid to settle for several days, or to filter it. They are most common in collodion iodized with iodide of potassium, and especially when the spirits are above the usual strength; in that case, three or four drops of water to the ounce will usually set matters straight. The collodion which you find free from spottiness, and which remain colorless to the last drop, is no doubt iodized with iodide of cadmium, a substance soluble in alcohol and æther, and not very liable to be contaminated with other salts which do not dissolve.

A Constant Subscriber.—Calotype paper might be prepared as you suggest, by floating first on solution of iodide of potassium and then on nitrate of silver; but the process known as "the single wash" is thought to give a better result in some minor particulars. When iodide of silver is dissolved in a strong solution of iodide of potassium, a salt is formed, known as the "double iodide of potassium and silver," which would crystallize out if the solution were evaporated; but on dilution with water, it is decomposed again into free iodide of potassium, which remains dissolved, and insoluble iodide of silver, which is precipitated on the surface of the paper. 2. In the albumen and waxed-paper processes the object of washing in water after sensitizing is to get rid of most of the excess of free nitrate of silver, since it is found that a clean and vigorous picture cannot easily be obtained if the nitrate be allowed to crystallize on the film. In the ordinary collodion process washing in water is not required, because the plates are used wet; but a *dry* collodion process would be conducted in the same manner as the others above mentioned.

D. C. L.—The "white precipitate in the sensitizing bath used for albuminized paper," and the "removal of the albumen from the surface of the sheets on floating them upon the bath," are caused by the use of common animal charcoal, which contains carbonate and phosphate of lime, and makes the nitrate of silver alkaline. Kaolin will answer the same purpose of decolorizing in a more effectual manner; but until the bath becomes nearly black, no treatment of any kind is necessary. To remedy the alkaline condition of the bath, drop in two or three drops of acetic acid; but be careful not to add an excess, or the prints will be red and feeble.

Neophyte.—The undulating lines on the plate which you describe are probably the fault of the collodion. If the collodion is very fluid, and gives a glassy film, add two or three drops of water; but if thick and glutinous, dilute down with rectified æther.

Medicus.—1. The same nitrate bath may, if required, be used both for positive and negative collodion pictures. 2. The sensitizing bath for paper positives becomes weakened by use more quickly than the collodion nitrate bath. 3. A toning bath for paper positives need not be filtered; allow the black deposit to settle to the bottom, and it will not injure the prints.

New Collodion.—Old collodion is not always the best for direct positives; if the newly mixed collodion does not give clear pictures, make a solution of iodine in spirit, half a drachm to the ounce, and drop it in until the collodion becomes golden yellow; or add a little of the collodion to the new.

DRY PROCESS WITH GELATINE AND GLYCERINE.

To the Editor of the Photographic Journal:

100 Bath Row, Birmingham, Nov. 14, 1856.

Sir,—Your readers may feel interested in the following modifications of two dry collodion processes, which appear to possess the advantages of the honey and gelatine combined. I prepare the plates with Ransdom collodion in the usual way, in a slightly acid (acetic I prefer for negatives) 30-grain bath; after well washing a solution of gelatine (made by dissolving 180 grains of pure gelatine in 20 oz. of water, filtered while hot, and by adding when nearly cold 3 oz. of glycerine of a density 1·300), is poured upon the plate, and allowed to dry spontaneously, or by the application of a gentle heat. I have kept plates seven, fourteen, and twenty-eight days, without discovering any diminution of sensitiveness. The plates can be developed with gallic acid and nitrate of silver or pyrogallic acid.

I am, Sir,
Yours, &c.,
E. Beckingham.

THE ALBUMEN PROCESS.*

BY D. D. T. DAVIE.

ALBUMEN PHOTOGRAPHS.

The art of producing albumen photographs is not very generally known in this country. The albumen process, in some respects, possess decided advantage over all other methods of photography. It works too slow for portraiture, but in views it by far supasses the collodion or daguerreotype process. The first advantage to be derived from the use of albumen, is, that any number of plates (of glass) may be prepared at a time; or if one desired to make a tour for the purpose of getting views, he can prepare one dozen or one hundred plates, more or less as he chooses, or as the occasion may require. The second advantage derived from the use of albumen, is, that the plate can be developed at any time, at the time the view is taken or a month afterwards. The third advantage or superiority of the albumen view, is its well defined outlines and its sharpness. In these particulars it is pre-eminently superior to collodion or the positive paper process. Another advantage which the albumen negative possesses over all others, is its hardness or durability, it can scarcely be scratched with the point of a knife. And lastly, it is ten times more sure than collodion.

DIRECTIONS FOR PREPARING AND EXCITING ALBUMEN.

Take 4 large size hen's eggs and break a hole in each end of each egg the bigness of a pipe stem, and put one end of the egg to the mouth, and by blowing, the white of the egg will be blown out of the hole at the other, and leave the yolk in the shell. When you have thus obtained the whites of four eggs, add to them in an earthern or glass bowl—

Serum of milk	6 drachms.
Pure honey	20 grains.
Iodide of ammonium	15 "
Bromide of ammonium	3 "

With a wooden fork or crotchet stick , beat this until it become a perfect froth. When this is accomplished, make a tapering filter, like that through which mercury is filtered, and place the small end into a clean bottle which has been previously prepared for this purpose, and with the fork, scrape the froth from the bowl into the paper, filter and set it by for twelve hours, which is sufficient time for the albumen to collect, and drip through into the bottle. The albumen being collected into the bottle, is now ready for use. It must be borne in mind that dust is very annoying in this process, therefore the bottle should be kept well stoppered, and every precaution against dust SHOULD be used.

When the plate is coated and dried, immerse it in the following solution for 10 seconds—

Proto-iodide of iron	15 grains.
Distilled water	1 ounce.
Glacial acetic acid	¾ fluid oz.

and return it to the box to dry, before it is made sensitive.

COATING THE ALBUMEN PLATE.

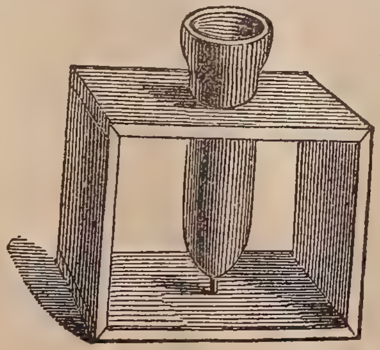

Fig. 1.

Fig. 2.

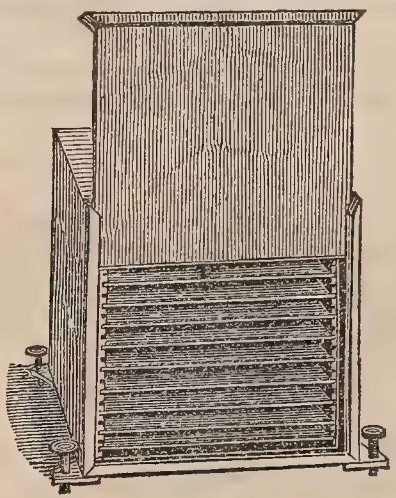

Fig. 3.

The following cuts clearly illustrate all the apparatus necessary for coating the albumen plate. The first cut represents the box and cylinder for giving a uniform coating; the second cut represents a glass tube for putting the albumen on the plate; and the third cut represents a box the size of a plate, with grooves and slides to place the plate in for the purpose of drying the albumen. The plate must be coated in a room entirely free from dust, in the following manner:—First, clean with care the number of plates that are to be coated, then take the shaft from the pivot as is represented in Fig. 1, (the top of this shaft is concave, all but about ¼ of an inch of the outside of the circle; on this narrow circle, is stuck in several places a very small quantity of gutta percha, by means of warming it); holding it in the left hand, warm the gutta percha over a spirit lamp, and stick it to the centre of the plate, which has been previously placed on a sheet of blotting-paper, with a circular centre marked with a lead pencil, the size of the end of the shaft. When the glass adheres to the shaft, hold the shaft in the left hand, and with the right hand brush the glass carefully; then take the glass tube, as is represented in Fig. 2. Remove the stopper from the albumen bottle, and insert the point of the tube in the liquid, and with the mouth at the other end, suck as much iodized albumen into the tube as is necessary to cover the plate; then clap the thumb over the top of the tube, to prevent the liquid from running back into the bottle; pass the tube to the plate held in the left hand, holding the plate somewhat angling or pitching from you; deposit the albumen carefully across the upper edge of the plate, and allow it to flow gently downward, until every part of the surface of the plate is covered; pour the surplus albumen back into the bottle; then immediately place the shaft in the box with the lower end on the pivot, and with the right hand set the shaft to whirling, and continue to whirl it for some seconds with such speed as to leave but a thin film on the plate (the speedy revolutions throws off much of the albumen). Then raise the shaft holding it in the left hand, and take the glass tube with which the albumen was deposited on the plate; place the large end in the mouth, and with the right hand, move it all round the edge of the plate, and suck with one continual suck, until you have passed all round the plate; the object in this is to remove as much of the albumen as possible. Blow the albumen all out of the tube, and be careful not to blow spittle in. The plate is now coated, and must be placed immediately in the drying box, Fig. 3. As will be seen by the cut, the box is mounted upon four feet with levelling screws, and should be levelled perfectly level before the plates are coated. A small spirit level may be attached to the top of this box so as to revolve, or one may be laid on the top, and when the box is level lay the level away. The drying box must be made with absolute accuracy, so as to hold the plate perfectly level, or the albumen will flow heavier to some parts of the plate than it does to others. This box must be provided with the same number of slides of soft wood, that you coat plates, and first place a plate then a slide, and so on alternately, otherwise the albumen will spoil before it becomes hard or dry.

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* Copyright secured.

SILVER BATH.

Distilled water	1 ounce.
Nitrate of silver	45 grains.
Glacial acetic acid	¾ drachm.

Dip the plate in this solution from 20 to 60 seconds, according to the temperature and other circumstances. The tests for this are the same as collodion. The plate prepared in this manner, may be used wet like collodion, or it may be dried and preserved for any length of time. If the plate is dried, it must first be thoroughly washed in distilled water, which may be done by passing a gentle stream over it for a long time, and placed in a box prepared for the purpose to dry. From the time the plate is immersed in the silver bath until it is developed, it must be carefully protected from solar light.

DEVELOPING ALBUMEN.

First Solution.

Distilled water	1 ounce.
Glacial acetic acid	5 grains.

This solution should be flowed on the plate in the same manner as you flow the collodion plate, and should remain one or two minutes, when it should be thrown off, and the following solution poured on—

Second Solution.

Distilled water	1 ounce.
Nitrate of silver	18 grains.
Glacial acetic acid	¾ drachm.

The time required for this agent to perform its work, varies from ten minutes to one hour. Its progress may be observed by holding a sheet of white paper under the plate, as it lies in a horizontal position, and placing the light in a position that will enable you to look through the plate. When every part of the picture is distinctly visible, remove the solution and wash the same as the collodion plate. The best method of developing albumen, is on a stand made perfectly level, by placing on it a light of plate glass and applying a spirit level. It is not advisable to use albumen developing agents the second time, but throw them away after they have performed their work. Sometimes it is necessary to change the solution in order to give the negative sufficient strength. In developing albumen, the solutions are not flowed over the plate as in developing collodion, but a quantity is poured on the plate (sufficient to cover it), and remains there until it has done its work. The albumen negative when dry is very hard, consequently it is not necessary to varnish it.

From the Liverpool Photographic Journal.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The usual monthly meeting of the Society was held at the Royal Institution, on Tuesday, the 2nd of December, 1856, Mr. Corey being called upon to preside.

The "Transactions of the Historic Society, for the season 1855–6," were received as a donation from the Rev. Dr. Hume, Honorary Secretary of that association. The thanks of the Society were ordered to be transmitted to Dr. Hume, and recorded in the minutes.

The Chairman observed that he had been trying the new process of M. Molard, described in the last Journal. He had found the film very brittle, whether from the addition of acetic acid, remained to be seen. A new preservative process, mixing dextrine with honey, with a large amount of iodide of potassium, had also appeared.

Mr. Forrest thought that Dr. Norris's gelatine process would answer the best expectations of photographers. It was extremely simple, and he believed the want of half-tone, so much complained of, arose from not covering their lenses rapidly enough, as the new process was very much quicker than some seemed to imagine. He had seen some negatives taken by Mr. Cauty and a gentleman from Manchester, which were exquisite in half-tone.

The Chairman thought Mr. Forrest's suggestion very good. He himself took a gelatine picture on the 28th, and succeeded tolerably well, although the sun did not shine any part of the time. [Mr. Corey produced the negative so taken].

Mr. Forrest, after looking at it, pronounced it to be a very good negative, but noticed indications of small cracks in the sky, and asked if any gentleman could point out the means of preventing them.

The Chairman would be very glad if any one could do so, the cracks being a defect to which some kinds of collodion were unfortunately peculiarly liable. Many suggestions had been thrown out by experienced photographers, but he believed this defect was as great a mystery as ever.

In answer to Mr. Forrest, as to the formula employed, the Chairman said that the gelatine process was only dissolving four grains of gelatine to the ounce of water, and steeping the plate in the solution seven minutes, having previously well washed it. Reference to the September number of the *Liverpool Photographic Journal* would give the full particulars as at present known from Dr. Hill Norris He (the Chairman) had experimented with every available form of gelatine, but had found that fine artists' glue gave by much the finest, most transparent, and most susceptible kind of coating. The exposure of the negative produced was four minutes on an extreme dull day, the plates having been kept four days before. On a summer's day one minute was sufficient.

Mr. Thomas said he had tried the gelatine process in four instances, and he had obtained a good negative every time.

The Chairman also produced negatives of Seacombe Ferry and Church, Conway Castle, and other views, taken by the gelatine process. They were very fine as negatives.

Mr. Berry wished to have it recorded that positives from gelatine were not equal to what they might suppose negatives would yield. He desired that to be borne in mind, and, indeed, he asked whether any of them could say that he had yet seen a satisfactory print taken from a gelatine negative. He, for one, had never seen any such thing. There were some propositions from Mr. Shadbolt, in the last week's *London Photographic Journal*, which seemed to strike at the root of the possibility of success with the gelatine process; and from what he (Mr. Berry) had seen of the results of the process, he was induced to think that there was great truth in it. It was this—they had their glass plate coated with collodion and immersed in the silver bath as usual; it was then taken out and all the superfluous silver washed away, and it was then put into a bath, or a solution of gelatine was poured over it. It had always been understood that, to produce a soft and rich picture with collodion, they must use a certain portion of free nitrate; if that was all washed away, they had illustrations of the consequence in the hard pictures which had been exhibited. The Chairman had referred to a new process, by Sparling, of Dublin, which was a counterpart of Taupenot's in another form; the success of which latter Mr. Shadbolt had attributed to the double coating of sensitive matter.—there was first the iodized plate sensitive, and then the albumen. He (Mr. Berry) thought there was a great deal of force in that.

The Chairman asked Mr. Berry whether he supposed they could preserve as well with honey as gelatine, when washed as well, and if the positives would then be as hard as these obtained with gelatine? Whether, in fact, it was the washing away the free nitrate that constituted the hardness?

Mr. Berry replied in the affirmative.

Mr. Forrest begged to make a remark before that *dictum* went to the world. He did not think that the gelatine required more washing than the honey plates. It struck him that justice had not yet been done to the printing from the gelatine negatives, and at the last meeting he asked them to suspend their judgment until he had printed from one of Mr. Corey's negatives.

The Chairman: It is indispensible with gelatine that it must be thoroughly washed, or there would be very objectionable staining. The pictures he had produced had a strong gush of water poured upon them from the tap.

Mr. Berry observed, with regard to Shadbolt's honey process, that it was usual to wash the plates in a weak solution of silver, so that some of the nitrate was always left on.

Mr. Forrest said this question was of the greatest importance to photographers, and he could not allow that opportunity to pass without expressing his admiration of the conduct of Mr. Shadbolt for giving the gelatine process a good name, though the author of the honey process himself.

The Chairman produced a number of photo-galvanographic prints, and read the following description of the process:—

"A positive photographic print is first taken, generally on paper. In order to produce from this a copper-plate, the following operations are employed:—

"1. A sheet of glass is coated with gelatine containing bichromate of potass, and other chemicals. When dry, the positive is laid on it face upwards, and it is exposed to light in a pressure frame for a few hours. The time of exposure of course depends on the intensity of the light. Sunshine is preferred, but is not necessary. The picture on the gelatine is developed in raised and sunk parts by immersion in a fluid, the principal constituent of which is water. Where the light has *not* acted, the gelatine swells and forms a ridge, or a series of minute granulations. Where the light *has* acted, the gelatine is hardened and does not swell. The picture on the gelatine is very curious, and resembles a positive by reflected light, the shadows and dark parts being rough, and the lights smoothed and polished.

"2. A mould of the picture on the gelatine is taken in gutta percha. This mould is an intaglio picture, precisely resembling the finished copperplate. The gutta percha mould is about half an inch thick.

"3. A copperplate is made from the gutta percha mould, by means of the electrotype process. This part of the process is very slow, occupying perhaps a week or two. The copperplate thus obtained is called the matrix. It precisely resembles the original gelatine picture.

"4. The copperplate from which the proof is to be printed is now obtained by the electrotype process from the matrix. This is a slower process than the last, because the copper is much thicker. It occupies about three or four weeks.

"The entire process therefore occupies about six weeks in the production; but every stage admits of reproductions, for many copies may be taken of the gutta percha matrix; these, repeated, by multiplication of the electrotype, so the pictures may be furnished *ad infinitum:* no amount of detail is an impediment, neither are the subsequent stages dependent on light. Chemistry and electricity will do more in a few weeks than the engraver by the labor of many years."

The prints were much admired.

The Chairman drew the attention of the members to a notice calling a special meeting of the Society, on the evening of the 23d inst., for the purpose of considering what steps should be taken in consequence of the retirement of their excellent friend Mr. Bell, the treasurer. He was glad to announce that the Society was now out of debt. Numberless shortsighted, he might say invidious, persons, had been ungenerous enough to assert that the proprietors of the *Photographic Journal* had used the Society's funds for carrying it on. He begged distinctly and emphatically to declare that the reverse was the fact. After the sacrifice made by the trustees there still remained a balance of £60 against the Society, and the proprietors of the *Photographic Journal*, finding that all their appeals to the members were not responded to in the manner they could have wished, had sacrificed the Journal, by selling it to pay off the liabilities of the Society. The Journal was no longer the property of any member or members of the Society, but had passed into the hands of Mr. Greenwood, who was the chief claimant against the association. He (Mr. Corey) had had the honor of partly conducting the Journal from its commencement, and entirely from April last to the present time, but it would in future be under the management of Mr. Crookes, whose name would be familiar to them all. He begged also to intimate that the Society would have to seek another corresponding secretary, as he found he could no longer devote the time to the duties of the office. At the meeting, on the 23d instant, it would be for the members to say whether the Society should be continued on its present basis, or whether they would accept an intimation which had been thrown out to join the Historic Society.

Mr. Forrest said it would be well to state that the Journal never was the property of the Society. The Society, misguidedly, had refused the responsibility.

The Chairman, in reply to a question from Mr. Burgess, stated that the present proprietor was most anxious to keep up the impression that it was the organ of the Society; its pages would be open to every member as heretofore, and in all probability it would be published fortnightly, in order to record the meetings of the London, as well as of the Liverpool, Photographic Societies.

Mr. Berry intimated that he should also decline to be re-elected next year. With regard to the proposition from Dr. Hume, as to their joining the Historic Society, he observed that if any member waited upon Mr. Forrest he would give them every information in his power touching the matter.

Mr. Thomas suggested that any information which the Society might possess, might be laid before the public in the newspapers.

Mr. Berry observed that, seeing the officers had already paid about £200 out of their own pockets, he did not think they would be justified in going to the expense of advertising.

Mr. Thomas thought it might appear as a matter of news.

The subject was then allowed to drop.

Mr. Forrest described a number of experiments he had made with the new process published by Mr Sutton.

Mr. Berry then proceeded to lay the following important observations before the members, on printing in general, but having especial reference to Mr. Sutton's new process:—

"I wish to throw out a few preliminary practical observations on photographic printing in general, before entering upon the discussion of the new development process, requiring 'no toning by gold or old hypo,' believing, as I do, that a vast proportion of the fading impressions might have been prevented by attention to the chemical changes involved in the various formulæ for producing positive photographs, more especially as regards the perfect removal of the silver compound, unaffected by light or development, as well as the secondary chemicals remaining, formed by the preliminary experiment, that a piece of ordinary photographic paper be soaked in any colored solution, such as sulphate of iodigo, bichromate of potash, saffron, &c., or anything that is capable of being completely removed by the affusion of water without any chemical reaction taking place.

"Take a piece of paper thus colored, and dry it in the usual manner, and then attempt to abstract the color by washing in the same manner as photographs. I apprehend the difficulty of completely removing the coloring material will indicate, by comparison, how very imperfect the fixing of positive prints has been.

"We may now examine the chemistry of the ordinary printing formulæ, and then compare with the baryta process just now in vogue.

"1st. The paper is salted with either chloride of sodium or ammonium, and dried; it is rendered sensitive by the application of solution of nitrate of silver in excess. The chemical changes are as follows:—

"Chloride of sodium or ammonium, with nitrate of silver, produces chloride of silver and nitrate of soda or ammonium; nitrate of silver being in excess.

"The residuary chemicals, nitrate, soda, silver, to be removed by washing, are in this formulæ very soluble in water, and when toned by the *sel d'or* bath, the unaltered chloride of silver is easily soluble in the hyposulphite of soda, which is to be removed by the subsequent washing.

"For a very considerable time, *vide* Hunt, the chloride of barium has been proposed as a salting chemical, producing excellent tones in the finished photograph, long before the gold toning was introduced by Mr. Sutton, and also long before coloring by the old hypo. bath was comprehended. Its peculiar properties, according to its most recent advocates, were, that photographs thus printed, either by the sun or development, yielded pure blacks with a new hypo. bath without gold or any other toning agent. Let us see whether the results produced are satisfactory in a chemical point of view. We will take, first, the ordinary sun printing process. Paper salted with chloride of barium, sensitized with nitrate of silver, contains in the dried sensitive paper,

Chloride of silver,
Nitrate of baryta,
Nitrate of silver,

This is exposed in the printing press, and commonly, without washing, plunged into a solution of hyposulphite of soda, the resulting finished proof being generally of a black tone. If we take Sutton's new baryta development process, the same decompositions result, with this addition, that the reducing agent, gallic acid, is even more likely to aid the liberated nitrate of baryta to exert its intense affinity for sulphuric acid, thus decomposing the hypo. solution, liberating sulphur compounds, so that the finished proofs are toned with sulphur, and, from the limited solubility of the baryta salts, rendering it almost impossible to thoroughly wash away the residuary chemicals."

A vote of thanks was, by acclamation, voted to Mr. Berry for his valuable practical observations, and the meeting adjourned.

Personal & Art Intelligence.

— When we issued our December number, we congratulated ourselves with the idea that we had all matters connected with our Journal so arranged, that the future would witness only our triumph over difficulties; but we, like all others, "are born to trouble as the sparks fly upwards," and the advent of the New Year ushered in a batch of accidents so unexpected, as to throw us completely aback; these, however, are of a mere temporary nature, and being overcome, their results will speedily terminate. On the first working day of the new year, our press broke down; whether because our pressman made too many calls the day previous, or because Jack Frost took it into his head to play us a mischief we know not—at all events, the work of our office had to stop for a time till the damage could be repaired. "But," says our reader, "your January number should have been issued before this accident occurred." Yea, verily, so it should have been; but, again, two other difficulties stood in the way—our supply of paper was not furnished in time, and we could get no mounting boards for our photographs. Our friend, Turner, ordered a lot for us in Boston, but although promised by the manufacturer to be delivered before the first of January, we have not yet received it. Fortunately we found a small lot, sufficient for our present issue, and in obtaining it we were glad to exclaim, "better late than never," which we hope will be the expression of all our subscribers also. Happily, our greatest difficulty is surmounted, and our photographic department will hereafter turn out its quantum of illustrations in due time. Our subscribers will see a marked change for the better, in the present number, although far from perfection. Still the improvement thus far made, will give evidence of future excellence, and our readers will appreciate this fact better, when we tell them that only two months ago our photographic printer scarcely knew what a photographic positive was, and had no conception of a negative; and that since we gave her her first hour's instruction, she has printed five thousand pictures, and that too during the shortest days of the year; many of them stormy and cloudy. We can safely promise, that hereafter our Journal will be illustrated by as good specimens of photographic printing, as are executed in any establishment in the United States, provided we can obtain the right sort of negatives. For these we must look to our friends to furnish, and we trust they will do so promptly and effectually. We must also call upon them to prevent other difficulties which must arise from a cause which makes growlers of us all, and be prompt in furnishing us "material aid" by paying their subscriptions at an earlier day than has been their practice heretofore. There are very few of our subscribers who do not know under what circumstances we publish the Photographic and Fine Art Journal; that in order to do it, we have to snatch hours devoted by others to rest and sleep, and that on their part it is their duty to pay us promptly, and not, by their neglect, oblige us to devote so many unnecessary extra hours in duplicating and triplicating their bills. To those who are now in arrears, we have but one word to say; pay up or you get our Journal no more. In remitting to us, register your letters or we shall not hold ourselves responsible for the amount mailed. As to the miscarriage of numbers mailed to subscribers, we cannot hold ourselves responsible; but we shall take every measure to have the evil corrected, and at an early day shall lay our grievances in this matter before the proper authorities. The balance of photographs due for last year's subscriptions will be sent as promised, so soon as we obtain the necessary mounting board. And now, finally, dear reader, we wish you a prosperous and happy year.

— Messrs. Whipple & Black, of Boston, have sent us four of the largest photographic portraits ever taken in this country, from life, by a camera. They cover a surface of 18x22 inches, are perfectly well defined, and, with a slight exception in one of them, fully equal in all the qualities of fine photographs to those of smaller dimensions ever taken. The group is exceedingly fine—well developed in every detail—sharp, round, and clear; with tone as soft and harmonious as it is possible to obtain, even in the smaller size positives. This will also apply to all the others. There is in them none of those harsh, magnified outlines and shadows, which has heretofore marred results of former attempts, to take photographs of such large dimensions from the model direct. They certainly evince one more decided step forward in the improvement of photographic manipulation. The camera with which these pictures were taken, covers a field of thirty-six inches; who the manufacturer is we have not been informed.

— Mr. Augustus Wenderoth has purchased the gallery of J. H. Bolles, in Charleston, S. C. Of Mr. Wenderoth's abilities as a photographer, we have evidences that they are of the first order, and we are of opinion that the good people of Charleston have gained an acquisition in the photographic department, which they should foster and support liberally. Mr. Wenderoth carried off the prizes at the late Charleston Fair of the South Carolina Institute, in all descriptions of photographs.

— Sutton's Gallery of Fine Arts.—Yesterday we had a visit to Sutton's rooms for the purpose of examining a very fine life-size family group, which has just been completed for a gentleman in this city. This painting we judge to be eight feet in length by six in height, and consists of the father and mother, and six children. The oldest being a young man with just enough of a light adolescentine moustache to be an ornament to the upper lip, and the youngest, a rollicking fat baby with a finger in its mouth; the other four children are grouped in various attitudes, and fill up a really very fine picture. The great point about these large life-size pictures, consist in their perfect likeness, obtained by the use of the ambrotype (?) process. This process does not by any means do away with skill and knowledge of his art on the part of the painter. But it makes the likeness depend less upon the eye of the artist, and ensures a trueness, which in these pictures must strike every one. Mr. Highwood, the artist who composes the groups, and whose exquisite skill finishes these fine portraits, is a gentleman of great skill in his profession, having obtained a medal of silver at the great school of Art which is established at Munich, the capital of Bavaria. He showed us a very exquisite copy of Raphael's Madona and child, which has excited much commendation for its correctness. Among the portraits which he has now on hand, is one of the venerable judge Abbott, in an arm chair. This portrait is admirable. Another portrait of Mr. Godfrey is very fine and truthful, and remarkably well finished, even to the turn of a hair on his eyebrow. The style of finish in which the ambrotype miniatures, and smaller cabinet portraits are got up, are admirable, and we have seldom seen anything more beautiful than some of the full-length likenesses, which are to be seen in this gallery of art. At this season where every one is looking around for gifts to make to friends, a visit to this gallery may suggest that nothing could be superior to a good ambrotype.—*Detroit Daily Advertiser.*

— Thos. H. Bailey.—You must excuse us for not having answered your last letter, but we find it very difficult to answer all we receive, and in many cases can do so only through our Journal. In this case we do so as others are also interested in our reply. In our examination of the pictures, we thought we traced evidences of too long exposure to the sun and also to the hypo. bath, nothing more. In regard to the formulas I use, I have found they all work well enough in proper hands, and I am of the opinion that my ammonio-nitrate solution could be still further reduced and give equally good results, by allowing longer exposure in the sun. I have used the same formulas this fall for printing, that were used last winter and spring, and the results, it will be perceived, are quite different. I have only added the acetate of lead recently, and I find I get clearer blacks and am less liable to destroy the middle tints. I do not think the slight acidity given to the bath by the lead, has any injurious effect; on the contrary my experience goes to prove, that pictures toned in this way are more permanent. I modify my formulas for fixing and toning occasionally, which I give in the article descriptive of the illustrations. In this way, whatever improvements are made in the quality of an illustration, can be in a measure traced to the cause. We shall have to obtain a copy of the French work you desire from some other source, as our translator is unable to find the one he used. We shall feel very much obliged to you for the article in question.

— H. Lazier.—Your request shall be attended to as you desire.

— S. M. Eby.—Your request has been attended to. You can dispose of the odd copies wherever you may think they will do the most good, and oblige us.

— J. O. King.—You shall receive them by the first mail after we obtain the necessary mounting board.

To the Editor of the Photographic and Fine Art Journal:

Dear Sir:—In noticing the article over the signature of C., page 349 in the November number of the Journal, I was a little surprised to see any one pretending to give a delineation of the photographic department, appear to be so afraid to mention all that was in this department of the Ohio State Fair which he describes. Mr. C. appears very much like the *Cleveland Herald* on the same subject. The Herald mentioned only the Cleveland Artists; Mr. Boisseau's, Mrs. Short's, Mr. Ryder's, and Mr. North's collection, and then for an *excuse* says, "if there were any others which they had not noticed, it was owing to the crowd preventing them from seeing any more." This may have been so, for the "crowd" is generally around the most attractive and beautiful articles, leaving the way clear to those of little importance; and probably for this reason Mr. C. could not see the two lots of Sphereotypes.

Mr. Stimpson of Cleveland, exhibited some exquisitely executed Sphereotypes, by far superior as pictures to any ambrotypes in the exhibition.

Mr. Bisbee's Daguerreotypes and Ambrotypes were very fine, as Mr. C. says; but his Sphereotypes were above comparison to any of them, and indeed as a photographic picture, unaided by the *painter*, they were the most attractive and finest collection in the whole room. Bisbee received the first premiums for Daguerreotypes, Ambrotypes, and Sphereotypes; the last of which Mr. C. forgot to mention. Yours truly, D.

— W. R. Sutton.—The photographs due to our subscribers for 1856 are printed, and waiting for the paper to mount them on. As soon as we can obtain this, we shall mail them promptly. Several others have written us on this subject, and we assure them they will all be attended to at the very earliest possible moment.

— J. Nicholson and T. D. Stimpson.—The missing numbers have been *again* sent by mail. We must, however, again take occasion to say, that we cannot be responsible for the faults of the mail. Each number of the Journal is regularly posted to the proper address, and it is no fault of ours if it does not reach its destination.

— Gibbs' Gallery.—We visited the establishment of Mr. P. E. Gibbs, on Main street, yesterday, and examined the various specimens of the Daguerrean art which decorate his reception saloon. We will be sustained by all who have seen these evidences of Mr. G.'s artistic skill, in saying that his ambrotypes and colored photographs are the *ne plus ultra* of excellence. The former, for their superior delicacy and fidelity to nature, especially excited our admiration. The coloring artist of the establishment is Mr. Amen, who, though quite a young man, evinces a degree of professional skill which warrants the belief that he will yet attain a conspicuous position in the world of art. The portraits of Mr. and Mrs. Gibbs, suspended in the gallery, were executed by him, and will compare favorably in smoothness of coloring and accuracy of likeness with the productions of more distinguished artists. In taking these portraits, the camera is brought into requisition for tracing the outlines upon canvas, and then the artist has to rely upon his skill for retaining the likeness, and imparting the natural expression. They are furnished cheaper than the portraits taken in the ordinary mode, and look equally as well.—*Richmond Daily Dispatch.*

— The Mechanics' Institute Fair of Va., issued the following premiums to the Fine Art department:

Class XLII—*Fine Arts.*

Wm. B. Meyers, a silver medal for his portraits of Booth and a gentleman.

J. Elder, a silver medal for his oil painting, representing a shipwreck.

John A. Calyo, first diploma for his landscape oil paintings, Nos. 10, 11, 12, 13, 14.

The School of Athens and the Bronze Statue, are esteemed worthy of the highest admiration as copies of great works of European celebrity.

Class XLIII—*Ambrotypes, Photographs, Daguerreotypes, and Materials.*

Ambrotypes, by Peter E. Gibbs, a silver medal.
Photographs, by J. H. Whitehurst, first class diploma.
Photographs, by D. Bendham, second class diploma.

— Mr. Wenderoth writes us—"As every photographer has been troubled more or less by the facility with which the *nitrate of silver* destroys the wooden plate holders, it would, perhaps, be agreeable to some to know the means to render them safe against such destruction; which is easily done by varnishing the whole of the holder with *Dammar Varnish.* This, for a short time remains sticky, but this is of no consequence. The silver has no effect whatever on this varnish, and runs off without leaving even a trace—the glasses remain firm in the corners, and the wood retains its strength. When the varnish is dry, it is necessary to scrape it off of the glass corners to prevent a derangement of the focus. The same must be done from the corners of the wood part that fits into the glass corners."

This is very good advice, but the other suggestions, though good are not practicable, inasmuch as these holders now cost as much as photographers will submit to, and the improvements mentioned would at least double the price.

— We see by Mr. J. H. Walzl's "*Monthly Bulletin*," that he is selling the Rev. L. L. Hill's book on the *natural* colors for *two dollars.* Mr. Walzl is the proprietor of "Tatum's *Patent Oil Ground* for Photographs," of which we have taken occasion to speak heretofore. By reference to our advertising columns, it will be perceived that N. G. Burgess, 393 Broadway, N. Y., is his general agent.

— Here is what a doctor tells of a curious application of photography, to the diagnosis of disease :

" One of the richest proprietors of the quarter Beaujon of this city, is so jealous of the beauty of his wife, that he has never yet called in a doctor, even in the most critical moments of illness or of suffering through which she had to pass. But lately a violent phlegmonous inflammation declared itself in the side of the handsome patient, in the presence of which the ordinary female physician of the family and the nurse declared themselves incompetent. This time the intervention of a doctor was imperative. But inasmuch as the disease was entirely exterior, the husband, who occupies himself a little as an amateur with photography, conceived the idea of taking an exact likeness of the seat of the malady, then to color it and carry it to the doctor. This was done; the doctor examined the photograph with a microscope and prescribed. Every morning a new proof of the disease was sent to the doctor, who judged thus *de visu* of its decline—the patient got well. When the hour for settling the bill arrived, the husband, as economical as jealous, endeavored to diminish it, pretending that he ought not to pay for simple consultations the same price as for visits at the bed-side. But by the advice of a friend he was made to understand that he had better settle the affair amicably with the doctor, otherwise the latter, who held his photographs might some day make his wife figure in a book of pathology for general circulation. The friend's advice was adopted.

— Mr. North as a Photographist.—We were astonished at seeing an article in the November number of the *Photographic and Fine Art Journal*, a letter signed C., giving an account of the pictures exhibited at the Ohio State Fair, held in this city, in which the following paragraph occurs:

" Mr. North exhibited photographs, life and small size, plain and colored in oil; also daguerreotypes and ambrotypes; some six or eight life-size colored in oil. The style of coloring in these was principally characterized by excessive smoothness in finish; but the pervading colors in the face being white and blue, gave a cadaverous hue not pleasant to contemplate. His daguerreotypes and ambrotypes harsh in tone,—otherwise good."

As a matter of justice to Mr. North, who is one of the oldest and best artists in his line in this section, as also to Mr. Pease, the artist by whom the beautiful life-size photographs exhibited by Mr. North at the Fair were colored, we call attention to the above, evidently the work of some interested person who wishes to build himself up by traducing artists of whom Cleveland has reason to be proud. It is not necessary for us to tell those people who saw the pictures alluded to, that their beauty and excellence received the approbation of the visitors generally. The softness and delicacy of coloring and beautiful finish of these pictures, were remarked by all.

We say this as a matter of pure justice to Messrs. North and Pease, and in so doing say nothing in depreciation of other artists.

We feel that this is right, inasmuch as many will read the article in the Journal, who did not see Mr. North's pictures, and thereby receive a false impression,—those who *did* see them will not need our assistance in perceiving the injustice of the criticism.

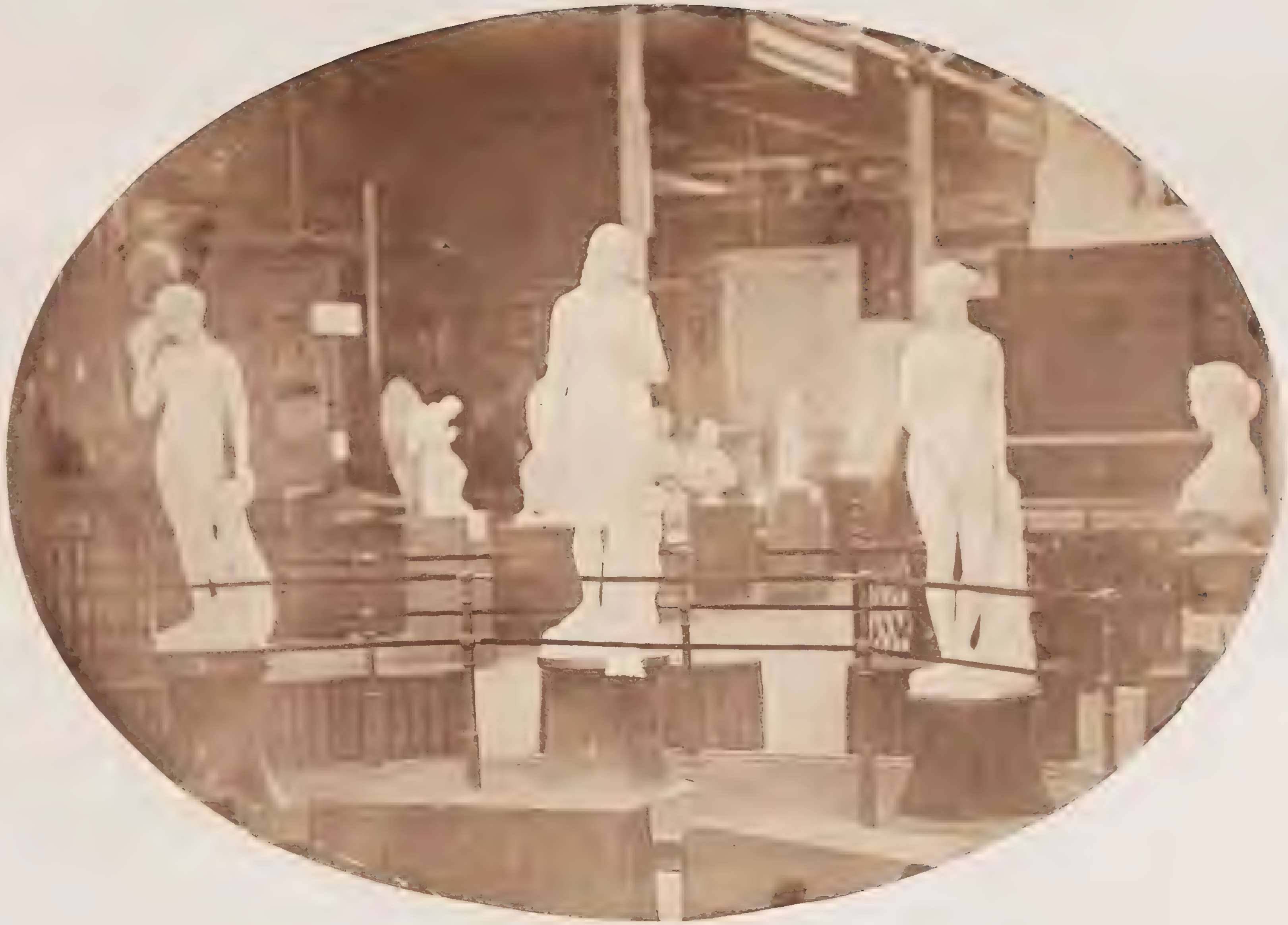
Mr. North has now on exhibition at his rooms, some fine life-size photographs which he offers for the inspection of those who wish to judge of their merit. Go and see them—they speak for themselves.

— The Hallotype.—It will be seen by reference to our advertising columns, that Messrs. Hall & Gurney will be prepared to make an exhibition of an extensive collection of these new and exquisitely beautiful photographic pictures on the 16th of February next. These pictures will be all portraits from the half-size up to cabinet, and we can promise beforehand such a display as has never before been made by the photographic Art. Extensive galleries exist throughout the United States, filled with fine specimens of the *painter's* skill *assisted* by the photographic process; but we will venture to say that none but those who have seen the few specimens of the *Hallotype*, ever laid eyes on artist's skill, or sun's pencillings so exquisite in every detail as this invention of Mr. Hall presents. There is an exquisite refinement, a subdued softness, a naturally brilliant coloring and lifelike expression in every lineament that is at first almost startling, and yet its contemplation reduces us to that pleasing state of perfect satisfaction which leaves little if anything to be desired. Our readers may think us too enthusiastic in our praise of these beautiful pictures—we can only say, we write just as we feel, and we know our feelings are shared by others. We know of no better comment for giving a just idea of their quality, than the remarks of one of our most talented miniature painters. On being shown one of these Hallotypes, he exclaimed,—" That is exquisite! that is really beautiful! I can say, I think, without boasting, that I am a good painter, but I can produce nothing like *that.* However, it is only a chance picture; you cannot always produce them." In this last expression he was mistaken; they have not only been produced again and again with the greatest facility, like the one shown to him, but even more perfect—more exquisitely delicate. The opening of the exhibition of these pictures, will form a new era in the history of the Art of Photography. What Mr. Neipce, Mr. Evrard, and the Rev. L. L. Hill have made a great noise about *doing* and have *not* done, Mr. Hall has quietly accomplished in another way, for it is an utter impossibility to produce photographs exclusively in the natural colors that can compare in any respect with the Hallotype. Our wife who has seen those taken of ourself, thus wrote of them on her return home:

Is it magic, brush, pencil, the hand, or the sun,
That has such a wonderful victory won ?
Both Magic and Art must for once be at strife,
To produce such a perfect resemblance to life !
There's the brow in a frown, and the brow in repose—
And the eye to perfection, the chin and the nose,
And the lips seem but wanting what art cannot reach,
Nor brush, pencil, sun can give—power of speech :
Let those who would wish a loved face to recall
When absent—obtain a resemblance from Hall.
Though a *shadow*, with nature so true it is ripe,
They will bless, as we now do, the new Hallotype !
Oh see from the union of color and light,
What wonders are furnished at once to the sight !
Not Guido's or Raphael's pencil e'er gave,
Brighter tints to illumine our life's darkling wave.
See—darts on our vision a being of light !
Could a painter produce a creation more bright ?
Sure the darkness of even is viewed in that hair,
And the sunlight of morning in that forehead fair,
And the violet hues of that soul beaming eye,
Have borrowed their tints from the azure on high,
And the lips like twin rosebuds—'tis witchery all—
Do you ask the solution—enquire of Hall.
And that cherub so pure, to which Palmer has given
A glory so bright it exalt us to heaven ;
By the magical touch which a Hall can alone give—
On the canvas, at once seems to move, speak and live !
But we pause ; for our artist his querdom must claim,
From a world which will grant him the laurel of fame.
Our plain humble tribute, to genius we pay,
Be it censure or praise greet the impromptu lay.

— We will again call attention to Mr. Kellogg's advertisement of his new camera box shield and bath, as we perceive he has added to it certificates from some of our most celebrated photographers. We are assured that it effects a great saving in nitrating large plates of glass and sheets of paper.

— Messrs. Faris & Irwin, late of *Cincinnati*, have purchased the Gallery of Mr. Root in this city, and have refitted it in *recherche* style. Mr. Irwin who is an artist *sans reproache* has charge, and is producing very fine specimens of photographic art. We are happy to hear that their success surpasses their expectations.



Fisher Boy. Eve. Greek Slave. Proserpine.

THE POWERS' GROUP OF STATUARY,
At the New York Crystal Palace.

THE GERMAN PROCESS.*

BY D. D. T. DAVIE.

FOR NEGATIVE AND POSITIVE COLLODION.

THIS process, it will be seen, varies a trifle in some respects, from the negative process given in another part of this book.† The change, however, is very trifling, and is intended expressly for negative pictures. The following is *verbatim* the German process, as given to and practiced by my friends, Hall, Fredericks, Brady, and others of New York. Thinking that it may be satisfactory, and perhaps useful to photographists, I have concluded to publish the entire manuscript, as it came from the pen of the inventor of the theory.

POSITIVE PROOFS.

1st.—PREPARATION OF THE COLLODION WOOL.

Put into a deep porcelain dish, 1 lb. well dried and pulverized pure refined nitre: 1½ lbs. chemically pure nitric acid; ¾ oz. well dried fine cotton; the cotton must be immersed as speedily as possible in this mixture, by means of a spatula of porcelain, so that the whole will be moistened immediately. Stir this mixture as well as possible for several minutes, cover the dish up for 1 hour, and place it in cold water; after this, uncover it and stir the contents through again a little; pour the whole into a large dish full of water, and wash the wool with rain water, until the water does not redden litmus paper; press the cotton well, and wash it out with warm distilled water; after this, it must be washed out with alcohol as well as possible, well pressed out, and directly dissolved in the following liquid:—16 oz. sulphuric ether, 10 oz. pure alcohol, 95°, and 200 grains of cotton, shake well and leave it to settle.

2nd.—PREPARATION OF IODIZED COLLODION.

It is necessary to remember that iodide of silver must be made by iodide of ammonium, and not by iodide potassium, or any other iodide connection, or else the preparation will not turn out as desired. Plain collodion, 18 oz.; tinct. iodine, 12 drops. In 2 oz. alcohol, dissolve 100 grains of iodide of ammonium, 40 grains brom. ammonium—No. 1. Then take 50 grains of nitrate of silver, dissolve in 1 oz. of water, and 40 grains of iodide of ammonium in 1 oz. of water; mix the two solutions and wash the precipitate two or three times with water, and lastly with alcohol—No. 2; now add this to the 2 oz. of iodized alcohol, stir up well and filter through paper; then add it to the collodion with the addition of 12 drops of fluoride of ammonium, let it stand 4 days before using it. In order to convince yourself that the collodion cotton is well prepared for positive pictures, dissolve a small portion of it in ether and alcohol, and pour some on a clean glass plate; when it has become dry, it will be perfectly transparent, but should it turn out not to be clear (dim or milky white), it will not answer for positive pictures; it will require new cotton more carefully prepared.

3rd.—PREPARATION OF THE SILVER BATH.

Dissolve 4 ozs. of nitrate of silver, and ¼ oz. of pure white sugar in 16 oz. of water, add 15 grs. of alcohol and 8 grains of iodide of ammonium; shake up well, let it stand 12 hours, then filter, and add 30 drops of glacial acetic acid; filter into a porcelain dish, and warm to a temperature of 60°, then filter again into a perfectly clean porcelain vessel.

4th.—REDUCING LIQUID; OR THE DEVELOPER.

Dissolve ¼ oz. of boracic acid, ½ oz. of sulphate of iron, ¼ oz. of refined nitre, 1½ oz. of alcohol, and 2 drops of the oil of cinnamon, in 1 pint of water; shake well and filter, and it is ready for use. I advise, however, not to have sulphate of iron prepared for longer than three or four days, as it would decompose after this time, and would not produce the picture complete; the middle tints in this case become mostly too hard, and the picture altogether too dark, which looks unpleasant.

5th.—CLEARING SOLUTION.

Dissolve in 1 pint of water, as much hyposulphite of soda, as the water will take; add 5 drops of aqua. ammonia, filter, and it is ready for use.

6th.—RE-DEVELOPING SOLUTION

Water	12 ozs.
Lunar caustic	40 grs.
Alcohol	1½ oz.
White Sugar	½ "

After the plate has been well washed from the developer, pour on some of this solution, and let it stand on the plate 1 minute; then pour off, and pour on some of the developing solution; the negative then obtains the required intensity. Wash well and fix.

7th.—BLACK VARNISH FOR BACK-GROUND.

1 lb. asphaltum varnish and ½ oz. of beeswax melted together; when cold, apply with a fine brush. If you wish to varnish the plate on the collodion side, coat with a solution of gum arabic or dextrine; this must be thin or the collodion will scale off. 1 oz. of gum arabic in 10 oz. of water, and dextrine in same proportion, will make a suitable varnish. The picture will be coarse with black varnish, without first giving it a coat of gum; the varnish will enter into the picture and spoil it.

8th.—CLEANING AND NITRATING GLASS PLATE.

Although cleaning glass plates appears to be plain, it requires some attention; I will mention the means I use to clean my plates. Pour water in a basin and add a small quantity of sulphuric acid; lay in your plates for a half hour, take them out with a glass or silver hook, wash with water, dry on blotting paper or linen; then take a small bunch of cotton, some tripoli, and sulphuric acid, and rub them well off on both sides; the rubbing must last until the plate is clean, finish with tripoli and alcohol; try them by breathing on them. They may be cleaned and placed in a box in any quantity beforehand, requiring to be slightly rubbed again before use, and dusted off with a soft brush. I advise, however, not to move the plates more than necessary while pouring the collodion on, so that no dust may fly upon the plate. A much better and more even coat will be attained by careful pouring than by much moving, as many are in the habit of doing. Do not dip the plate immediately in the silver bath, after coating with collodion, but wait about one minute, and hold the plate horizontally; now dip it slowly, but without delay, into the bath, to remain three minutes, while being gently moved from time to time therein; draw out the plate and let it drip four or five seconds, repeat this until the greasy, oily appearance vanishes, and the silver solution flows even over the plate; take the plate out again, let it drip well, and place it several seconds on blotting paper, so that the superfluous silver runs off a little; place it in the camera frame or holder for the operation of taking a picture, and expose according to the light.

TO TRANSFER THE COLLODION PICTURE TO OIL-CLOTH.

To transfer the picture from the glass to oil-cloth, wash the picture well, and before dry, cover it with the following liquid:—1 pint of water, and 6 oz. of nitric acid mixed; heat it over a spirit lamp until the fluid begins to fume; in about five minutes throw the liquid off, and wash the picture once more. The well cleaned oil-cloth, cut a little smaller than the plate, must be slowly and carefully placed over the picture, so that no air remains between them, then rub gently with the fingers to make the oil-cloth stick to the collodion; then raise one corner of the oil-cloth, and so raise the picture from the glass; wash again with water, dry over tolerable heat, rub off with a brush of cotton, and the picture is ready to frame.

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* Copyright secured.

† See page 1, No. 1.

REMARKS.

It will happen that after awhile, the pictures will turn out gray and dull, instead of white and clear, caused by too much alcohol in the bath, although alcohol is a very important item in positive pictures, yet it has, when improperly used, a very destroying and unfavorable character. With green copperas, it facilitates the proportionable flowing over the plate, and it further makes the pictures in all parts develope uniformly; but as soon as there is more applied than the scale calls for, the pictures becomes gray and monotonous. This also will happen with collodion, particularly when the collodion has been used before. Ether evaporates quicker than alcohol, therefore it will soon contain too much alcohol, which gives the same effect on that account. You have principally to watch that there is not more alcohol applied than is necessary. In case the bath should be saturated with alcohol, so that the pictures don't get white any more, heat the bath in an evaporating dish, to the temperature of 60 degrees for a quarter of an hour, then cool and filter, and it will be ready for use. The developer must flow evenly over the plate or it will produce spots on the picture, in that case add ½ oz. of alcohol, after which it will flow even again on the plate, and produce bright and clear pictures; but should the addition of alcohol not be any improvement, it will show that the bath contains too much, which likewise must be removed by heating, after which you may pour the copperas even and nice over the plate again, the collodion must be at least 3 or 4 days old before you can get good pictures with it, the older the collodion the better the picture it produces. The collodion must not be too thin when used for transferring on oil-cloth, it must form a thick solid cover, or it will tear in the process; with thick collodion you are more likely to obtain good pictures than by using it thin, the bath will give the highest susceptibility to the plates only when it has the right strength for the collodion; if the bath is not according to the specific proportions, it will dissolve the iodide of silver, if too weak, the silver portion will form consequently on the surface of the plates, and the picture will be cloudy.

NEGATIVE PICTURES.

To get negative pictures, you have to proceed in the same manner as by the positive process, with the only difference, that the exposition within the camera must be twice as long (prolonged) for a negative; then for developing the positive picture, use the same protosulphate of iron until the picture appears in all parts clear and sharp. Do not pour more protosulphate on the plate than necesssary to just cover the surface; too much protosulphate will wash the silver off and spoil the effect (strength) ; and should the picture not become distinct (effectively strong) enough, it can be improved (strengthened) by the ull solution.

12 oz. of water, 40 grs. of lunar caustic, 1½ oz. of spirits, and ½ oz. of sugar added and filtered. Now wash the picture to remove the protosulphate of iron, and pour, carefully, some of the silver solution on the same, let this operate from 30 seconds to a minute, and pour it off again; then pour on some of the re-developing liquid, and the picture will come out bright; this process can be repeated until the strength required is obtained. It must be well washed and fixed; this is to be done with 1 part ammonia and 5 parts water, the ammonia does not dissolve the iodide of silver, it only prevents the changing of the pictures by the sun while copying. The pictures contain still all of the iodide of silver; this, however, won't hurt them, but contributes only for the better production of a strong and most delicate copy; after the ammonia has operated for some seconds, the picture must be well washed and coated with gum arabic, and dried over the spirit lamp, the negatives produced by this process have more elegance and purity, than those of other known processes.

PRINTING POSITIVES.

PREPARATION OF THE PAPER.

I prepare my positive paper in such a manner as to prevent too great penetration of the picture into its tissue, which gives it more clearness, softness, and strength. In 6½ oz. of water, dissolve ½ an ounce of sal. ammoniac, and add 115 grs. of arrow-root: boil the mixture over a spirit lamp in a porcelain dish, continually stirring with a glass rod. When it becomes perfectly transparent let it cool. Place the paper on blotting paper laid upon a smooth even surface, and spread it over with the salting solution in all directions, until the paper is almost dry; then lay it aside and proceed to prepare another sheet. In this way as many sheets as desired may be prepared.

SILVER SOLUTION FOR POSITIVE PAPERS.

Nitrate of silver	1 oz.
Water	8 "

filter. Float the paper on this solution 3 or 4 minutes, and hang up to dry in a dark room.

FIXING BATH.

Hyposulphite of soda	6 ozs.
Water	36 "

and dissolve.

Cyanide of potassium	¼ oz.
Water	2 "

Dissolve and add to the first solution. This last solution may be omitted.

Print the picture in the usual way, and throw it into the following solution for two minutes:—

Common salt	½ oz.
Water	16 "

Then put it into the fixing solution and let it remain until it reaches the desired tone. Should the tone be too red, it can be brought to a deep blue-black, by placing it in a bath made as follows:—

Hypo. soda	2 oz.
Water	1 pint.
Saturated chloride of gold solution	30 to 50 drops.

When sufficiently toned, wash it well on both sides under a stream of water, until the sweetish taste is no longer perceptible; allow it to soak a few minutes in a basin of water, and then hang up to dry.

HOW MISS HOBBS FOUND HER BRACELET.

Miss Hobbs was a spinster. Miss Dobbs, by some years her junior, was her bosom friend. The twain were Damon and Pythias in the feminine gender, David and Jonathan reproduced in calico and crinoline. Miss Hobbs confided in Miss Dobbs, and Miss D. returned the sweet confidence with a fervor which met Miss H. rather beyond the half-way line.

Of course Miss Hobbs showed Miss Dobbs "all her things," never would have omitted doing so "for worlds," or for any other equivalent whatever. The twain were well known at the counters of dry good stores in Lake street, for never did they go shopping save in one another's company. They read from the same book, were together by day and by night, thought the same thoughts, and such was their sweet close compact of friendship, would doubtless have worn the same bonnet but for obvious reasons, for an appreciation of which the anxious inquirer is referred to some fashionable milliner.

Time will sour the sweetest milk, thunder storms have been known to turn to acid the mildest and smallest beer. It is not known what changed to gall the brimming honey of the affection of Angelina Dobbs and Seraphina Hobbs. Probably it was only a miff at first, then they tiffed, and finally they wouldn't speak when they met. Months have passed since all love died out between the pair.

In the heyday of their fondness, Miss Hobbs missed a bracelet, a valued and valuable ornament of a peculiar pattern. Miss Dobbs wept with her at her loss—"Never was so sorry in her life" as on that occasion—"would rather have lost her right hand than have her dear Seraphina so afflicted" all of which was taken by the bereaved Hobbs with a small per centage off, convincing her fully, of the reality and depth of Miss Angelin's sympathy. Summer yielded to frost, July became December, and December died with the year. On New Year's day Miss Hobbs resolved to be daguerreotyped. She made choice of Hesler, the wall of whose gallery are hung with gems of his art. Miss Hobbs, in quest of means to decide the details of style and price, looked closely through Hesler's show rooms. Pictures met her eye at every turn. Life size, half size, quarter size and miniature, in oils, in water, India ink, in gilt frames, and without frames, photographic, stereoscopic, there they hung, and there stood Miss Hobbs and screamed.

It was only a little scream, and created no disturbance in Metropolitan block, but it relieved Miss Hobbs' feelings, while she continued gazing at a modest ambrotype which lay on the counter waiting to receive its case. It was the picture of Miss Angelina Dobbs, the long lost friend, and on her arm—shade of past amity!—*the long lost bracelet!* Hesler had done his work well, he always does. The picture was complete. That was not more truly the countenance of Miss Dobbs, which seemed to blench even behind its glass, and gather a glow not borrowed from carmine beneath the angry eye of the awakened and horrified Seraphina—that was not more truly the very mantilla which Miss Hobbs had helped her price and buy, than was the bracelet which stood out fully relieved on her arm, the identical missing bracelet lost by the mourning Hobbs, and lamented by faithless Angelina Dobbs.

Miss H. sought an interview with Miss D.—it was refused; wrote her a letter—it was returned. It was all up with Miss Hobbs, all over with the bracelet One resource remained, the law. An interview with Justice —— on Thursday of last week resulted in placing a search warrant in the hands of a constable. The worthy official, it is supposed, did his duty, and got covered with glory, certain parts of his countenance excepted, where the deficiency has since been supplied by court plaster. From this it is to be inferred that Miss Hobbs only yielded to the search warrant under protest, sustained by a vigorous application of that decalogue of irate feminity, her ten digital nails.

The bracelet has been found. Miss Dobbs refuses to prosecute. The parties have compromised. The reporter is silent as to true names and localities, for he has been paid for his silence. There was, however, a point where his sense of duty to the public rose superior to mercenary considerations. Though offered a full package of tickets in the last drawn Chicago Joint Stock Association, (the next highest number to one of which drew the river front of lot 5, block 16, on the Calumet,) he cannot be hired to entirely suppress the narrative.

The moral of the tale is obvious. Young ladies, don't go to Hesler's to be daguerreotyped in stolen ornaments. Hesler would have exposed the daw who borrowed the peacock's feathers, had he sat for a miniature. Hesler's camera was the Pinkerton & Co. which detected the guilty Miss Dobbs. Allah il allah, great is photography.

TALK OF PICTURES AND THE PAINTERS.

BY AN OLD TRAVELLER.

CHAPTER 1.

Introductory—An importunate thought—The Scala Regia of the Vatican—Shortest path to the Transfiguration and the St. Jerome—The Sala Ducale—Loggia and Corridor of Bramante—Treasures left unvisited—Hall of the Arazzi—The first Pictures!—Bologna—The Crucifixion of Guido—The St. Cecilia—Parma and Correggio—Florence and the Umbrian Masters—Venice and Titian Venetian Traghetti—Our part in Titian—The Cornardo family—The Bridgewater Beauties—Temple-Newsam—The Recluses of Wiltshire—Holy Family at Dresden.

How perversely will some perplexing or painful thought, or rather imagination, sometimes cling to one's company; I do not say to the mind, since the mind has very little to do with the matter, but to one's society, as it were. You, the recipient of the visit—but slightly flattered by the preference—doing your utmost to free yourself from the unwelcome guest. You seek to displace the obnoxious thought by others, for example; you call on such as are almost decidedly antagonistic thereunto for aid, but they do not effect its expulsion. The strength of your assailant is to much for you; he will not be won to leave you by entreaty, nor can you enforce his absence by command; the more you bid him begone, the more he won't go: he has marred the hours of your day, and if you have not the better fortune, he shall make you keep with him the watches of the night.

There came a fantasy of this pleasant complexion to attend our levee at the waking hour of the good yesterday, no longer since, and thus did the pale-eyed shadow salute us:—"Suppose the great and treasured pictures of the world,"—Fancy *loquitur*—"suppose, I say, the best and greatest pictures should all be lost! not merely borne from the shrines of their worship by the conqueror—a mere displacement, to be deeply expiated and atoned for reverently in the better days—but lost, annihilated, resolved in their clements—ah! those subtile essences, who shall give them names?—become exterminate; no longer to illumine the ages, no more to absorb the love of man; never again to make the heart leap in the bosom of him who doth but hear the faintest echoes of their name borne to him like sweet music from some brighter sphere than that of his inhabiting.

"Dost thou mark me well? All that Rome enshrined for the world—all that Florence joyed in—all that Venice made her pride, and all that Bologna treasured: some Eidolon—created to that end—nought evil enough had existed till the baleful moment of *that* birth. *This* hath swept great wings of darkness over their charmed existence, and the guardian spirits have yielded and all have ceased to be!

"Hast thou comprehended what has befallen thee? Behold the Vatican; the cold walls are there, but the Transfiguration, the Last Communion, where are they? What now shall it avail to Rome that men have called her the home of the Cæsar and the pontiff, if these be gone? Are there tears enough to bewail them? can the mourning ever cease? And *thou*, most wretched! it is the Scala Regia that rises before thee; but to what purpose should thy foot now tread the pure proud marble of that regal way? Wilt thou ever again ascend it with that elastic step which carried thee bounding up its magnificent flights; glad at heart because the shrines of thy worship—the worship of all humanity—shone dearly guarded beyond?

"They had received their due homage on the day that was then the 'yesterday;' aye, and the day before it, and on many another behind and behind them. Yet was their perennial newness, their perfection in one part and in all, none the less drawing thee towards them at that fortunate moment which was then the 'to-day.' All eagerly didst thou once more seek them, thy soul wedded to their beauty, and thy heart rejoicing.

"And so thy step was ever onward, and for these thine idols wert thou content to pass swiftly through the Hall of the kings, even though the Sistine was so left for once unvisited. True, thy duty to the great Florentine was paid, aye, duly and dearly paid, on the morrow.

"Still on, by the Sala Dula, and by that Loggia which the genius of Bramante provided for the grateful centuries: onward still, but with step subdued and chastened brows, for sacred and deeply touching are the relics on either hand.*

"To these records of wrong and suffering succeed forms of beauty, such as Greece alone could image forth; but you passed lightly, in that day we talk of, albeit with glistening eyes and many a glance of love-fraught greeting, for the deities of your worship were yet afar.

"The Torso—the Torso of the Belvidere—presented its grand proportions in the farthest distance; but you did not ascend that intervening space—you left the Torso, you left the Apollo, you left the Laocoon, you left those many halls wherein fair Sculpture has gathered the best of her treasures, all inviting you, and all holding due place in your heart; but your path lay forward, and you held on.

"Who is there that can fail to remember the solemn way that next you trod? who, that has once seen, can forget those Egyptian skies, whose diamond stars pour their beams upon the gazer from so deep a blue? Calm of aspect, and wit silent motion, doth he who enters the mystic chambers pass through their awful bounds; and you—you restrained your impatience in these shadowy precincts; but issuing forth to where yet another marble staircase invites the well-pleased foot: you then sprang gladly upward.

"The white marbles of the Sala della Biga gleamed upon you from their state dwelling, but you made no halt. The riches of Etruria—dead, yet living ever—sought to woo your footsteps farther still up the glittering whiteness of that marble way, but you did not pursue that tempting path; your cynosure was lighting the distance still, and you passed on.

"Rapidly through the halls of the Candelabre, and with hurried glance alone for all they offer, because your heart was intent on the glories beyond, and 'some lighter moment,' you said, 'shall suffice for what is here.'

"Yet farther, and long spaces fell behind you as your feet pressed ever onward. Perchance some bright creation of the sculptor's genius might arrest them for a short space, when your eyes fell on one of the many courts lying far beneath, and presenting themselves from time to time as you traversed the floors of those wondrous corridors through whose length it was that then you glad advanced: but these were transient deviations, and you held on.

"Long travel brought you to the hall of the Arazzi, those undying works of the loom on which the genius of Raphael himself—how truely called divine—hath conferred their immortality. Before these you passed more slowly—nay, you paused; for each one you had brought some tribute of homage, and here, for the first time, you made halt.

"It was besides meet that you should do so, for were you not at length arrived within the very precincts of the sanctuary? One dim and silent chamber only, and that of no wide space, now lay between your eyes and the desired objects of your long yet delightful progress.

"And at length you had traversed even this; the world's first treasure in Art, its greatest picture,† rose bright before you—you stood reverently in the presence of the Transfiguration.

"Time passed, but the votary gazed on,‡ yet with the sense of a divided duty; allegiance still to be paid, and paid willingly, gladly, devoutly—the allegiance of the heart, for you had but a mere slight turn to make, and the grand work of the honored Bolognesese the earnest and conscientious Domenichino—St. Jerome's Last Communion—was also your own.

"And now!"

And now!—malignant fancy! impertinent shadow! all vain thy *were* and *did*—the now "is as the then." Say therfore, *are* and *do*—both still delight the world—they do and shall; still are they all our own, and they defy thee!

"Suppose Bologna bereaved of the St. Cecilia, and no longer standing in reverence before the Crucifixion of her Guido!—that sublime presentment of 'darkness visible;' words, of which you do not comprehend all the import until you find yourself silent, and awe-struck in the grand presence of that immortal work.

"Or think of Parma, shorn of that wealth which makes her pride—The riches bequeathed to her by the love and genius of Correggio? for what were Parma without Correggio?

"Imagine Florence, no longer hallowed by the light thrown ever round her from the works of her sainted masters§—all uncheered by the relics she treasures of her Leonardo—hers! nay, rather the broad world's Leonardo—the Leonardo of all the Art, of all the Science; for in which of all did the illustrious Leonardo da Vinci fail to attain excellence?

"And how would Venice bear the oppression of her lot, if, unconsoled by the cordial thought of her Titian's glory, if not sustained by the proofs of his greatness? The chill of death it is that seizes the heart, as one thinks of Venice deprived of Titian."

Of Titian! aye! in happy hour hast thou evoked his name, ill-omened Fantasy! that magician hath proved too potent for thee; those eyes, grave with the gathered wisdom of a century, yet genial as when his third decennium had just brought him the fair spring-tide of its earliest years; these have exorcised thee, horrid shade! the dim edges of thy shadowy mantle are disappearing. Thou art gone! and we know that the world is still rejoicing, yea, and shall rejoice, in the riches that genius hath endowed it withal.

That the great sun of Venice, bright as are its rays, is to the present writer as are certain luminaries of the Roman and Florentine heavens, may not be affirmed: yet has Titian been ever the first of our thoughts when approaching Venice, and the last—though others also mingle tenderly in the feelings experienced at *that* moment when the time has come for leaving the much loved city. To the works of Titian have we constantly paid the first of visits, and if certain loves, long cherished, cause us to linger around the fanes wherein other great and noble spirits are enshrined, in the more solemn hours of impending separation‖ still is the admiration of this great master entwined inextricably with our love for his loved Venice, "la *sua* Venezia;"¶ and highly have we valued what we have greatly as well as largely enjoxed—the privilege of haunting such portion of the city derive added interest from recollections of the most distinguished among her many sons.

But why, indeed, say such parts as retain recollections of the master, when it is in fact a truth that all parts do so, more or less? Not because he gave us much of Venice in her external forms—he did not: as compared with the vast number of his works, those in which he has depicted any given part of Venice are but few. Some portrait of a Doge; produced in his capacity of state-painter, perhaps, an office* in which he succeeded his master, Giovanni Bellini, may occasionally exhibit such; but otherwise the architectural beauties of the city are rarely reproduced in the works of Titian. Yet do you find these works most forcibly recalled by the living pictures, grouping themselves in rich variety, as you take your delightful way through this charmed Venice, where all is picture. We have not found them at every step, as we have heard some declare to be their own good fortune; his male figures not always carefully drawn, nor yet remarkable for grace of attitude, yet ever magnificent men, with their faces of deep earnest meaning, or it may be of a dangerous astuteness, *have* crossed our path, but not through all its length; nor do the rich contours of this women though seen in greater abundance, invite your admiration at all hours and in every place. Still is it true that things in Venice are constantly reminding you of Titian—things that are Venetian, be it clearly understood;—he is present to you perpetually, and, save in some few places, where you become subjected to the influence of certain other great spirit, ruling here—may be said to possess you wholly; neither are the mind and heart thus subjugated unwilling to wear his chains; on the contrary, they bear them gladly, aye, proudly.

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* The reader acquainted with the Vatican will remember that memorials of the early Christians, taken from the Catacombs, are ranged on each side of the corridor of Bramante, along a certain portion of its length, that is to say, which is upwards of four hundred paces, the Loggia preceding included. Beyond these are marbles of varied character, the corridor itself terminating in a flight of steps, which, being ascended places the visitor in presence of the Torso of the Belvidere.

† So have great authorities long decided: the writer has heard discussion on that question but this is not the place to repeat the arguments, whether on one side or the other.

‡ Yet the mortifying confession has to be made, that only frequent visits—each gradually, yet almost unconciously, made longer and become more impressive—enabled the present writer to appreciate the works of even this delightful no less than illustrious master. That long acquaintance with the works of Michael Angelo can alone make you capable of comprehending, of enjoying, at the first glance—I could almost have said of enduring *them;* this I know is a state of things frequently explained. But not to delight in Raphael, and from the first, that was a mortification! Yet so it was, and such is the truth. It is also true that the painful apathy was not of long continuance, or perhaps, I should say, did not occasion a perpetual sorrow. But enough of this.

§ Alas, that so few of their works are found in our country. Private collections excepted, the names of Fra Bartolommeo, of Il Beato Angelico, are scarcely heard among us.

‖ Il Moretto, who though born at Brescia, and always proudly claimed by his compatriots, is accounted with right among the Venetian masters, has been the object of a warm predilection to the present writer from the first moment of our acquaintance, made some fifteen years since in the Academy of Venice. Masters of a yet earlier period are also there, to whom a larger portion of this writers affection was early given; and it has been a source of infinite satisfaction to us to learn, as we have lately done, that examples of their charming works have been, or are on the point of being, added to our National Gallery. Of these masters, and of their productions, we propose to make such remarks as our recollections may suggest, in a future paper.

¶ "La mia Venezia" is the expression of the adopted son, when speaking of his beloved foster-mother.

For the people, as Titian painted them, you see these, perhaps, more particularly around and about the Traghetti; not at all of them—far from it; you find them in some favored localities only. There is one presenting itself at this moment with the vividness of reality to my recollection—and oh, the charm of that delicious memory!

The traghetti are the points of departure or arrival used by the gondolier; but if you ask, "Why, then, do you not call them stairs or ferries?" we make answer and say, "Because those names would not reply." The traghetto serves the purpose of a stair or ferry but is not like either whether it be the prosiac and city-suggesting "stair," or that less commonplace, nay, very often poetic and delightful passage of some fair bright river, called a ferry. The Venetian traghetto is——it is the—traghetto; and he who shall desire to know it more intimately must e'en betake himself to the place of its birth—no very heavy doom.

But not on all the waters of Venice shall you find the true Venetian traghetto; it is not that which meets you as you descend the Piazzetta, nor shall you find one along the whole "Riva degli Schiavoni." "Stairs" in abundance you may find, neither will you suffer lack of gondolas, nor of the dashing gondolier; but for the traghetti—worthily so-called—you will look in vain. Far away, and among the less travelled parts of Venice, it is that you must seek them, or rather it is in these little-known regions that, in your loving quest of old undying memories, you will come upon the picturesque vine-covered nooks, wherein their barks nestle cosily, to your infinite self-gratification. So it is, I say, that you must seek, and shall find them; but once found you shall be seen to take those rarely trodden—but how picturesque!—byeways, again and again.

My traghetto, at no great distance from that "Calle Gallipoli," wherein Titian made his abode, before removing to the contrada di San Canciano, is one of the many treasure-troves due to our own love for prowling around the long-forsaken abodes of the buried great. Giorgione made his home in the immediate vincinity; and it was after leaving the Church of San Silvestro, or rather the open space before it, wherein our most dear Giorgione passed a no small part of his too short life, that we stumbled upon the narrow *vicolo* or alley by which alone, coming from the land-side, you can approach it.

Having once, but long since, been the water-gate to a building of great extent, now partitioned off into poor dwellings, there are still traces of marble pavement in the cracked steps by which you descend to your gondola, and along the low wall over which you bend to ascertain if your gondolier be there to await your pleasure. And you will pretty surely find him; for rarely does the Venetian gondolier fail his master, though he be but the hircling of a few weeks or months, as the case may be.

Trained over a few slight poles, crossed by rods yet slighter, a vine serves to shelter him who waits there from the too fervid sun. It can scarcely be called luxuriant that vine, but the leaves are broad, and they cast flickering shadows capriciously over the group gathered beneath it—figures that would not look out of place in one of Titian's pictures. They are not numerous—father, mother, and two exquisite children, make up the count; the man, his black cap placed becomingly over a candid brow, is simply a handsome powerful fellow, just now bringing his "barca" to shore, for at this traghetto he is at home: but the mother has that luxuriant form and lovely face which the great painter so well knew how to enrich his canvas withal. With one exception, nevertheless, the hair, that is to say: her rich locks are abundant as he could have desired, but they have not the fair tint so much approved in Titian's day, and which was therefore procured by chemical appliances, if the authorities tell us truely. No! the sweet mother's hair is of a brown so dark that you see it is not black simply because the light imparts to it a golden tinge, and not the raven glitter peculiar to black tresses, yet not, as we think, so lovely as this rich dark brown. In all save this, my gentle favorite—her kindly manner and sweet low voice are charming as her looks—is a very Titian. Methinks we'll ask her some day from which of his frames is that she hath stolen forth. The color of the hair—and even here the advantage is all on her side—makes the sole difference. The head small and elegant; the features delicate and full of tender expression, melting to softness in the clear and bright, yet somewhat melancholy eyes: such was the mother about whom there clambered one little beauty of a boy, while the other lay yet on her bosom. How charming was the picture they made!

I never heard a name for that Traghetto, or would tell it! The boy will be now a toiling man, and the infant a youth approaching the age of toil; the dark locks of the gondolier will be taking a tinge of grey, and his beautiful wife! she will not now exhibit the grace of those times, seeing that good twelve years at least have passed since it was our pleasant habit to take boat beneath their trellis of vines, on our way to one of our most-beloved haunts—the Venetian Academy.

The works of Titian crowd on the memory. How should it be otherwise, the activity of his life and its extreme duration considered. Happily some of the best are in our own country; that of the Cornaro Family, in the possession of the Duke of Northumberland, will recur at once to the recollection of all lovers of Art, as one of the master's finest works. The writer has twice had the advantage of seeing it, but five years have elapsed since the second of those visits (made in 1851, when the mansion was thrown open to the public); and although retaining a recollection of the work very precious to ourselves, we prefer to borrow the words of a more competent authority, for that description which we think must needs be welcome to the reader.

"In the dining-room," says our author, "I found Titian's celebrated picture of the Conaro Family, the chief object of my visit. A man already advanced in years, and of dignified appearance, kneeling in front, as the head of the family, before the left side of an altar, on which the host is placed. He is turning, a little towards a man rather younger than himself, kneeling behind him, and is directing his attention to the object of their veneration. The latter, as well the still younger man, kneeling still further behind, are given in profile. Lower down are three boys worshipping, with whom three others on the opposite side correspond. All the figures are the size of life. This picture is worthy of its high reputation, and holds the same rank among Titian's pictures as the Corcina family worshipping the Virgin and Child, in the Dresden Gallery, among those of Paul Veronese. The heads of the three men are particularly grand and simple in the forms, even for Titian, while the portrait-like animation of the characters happily unites with the solemn expression of devotion. To these figures, which, as well as the altar, are decidedly relieved against the bright sky forming the background, the open *naive* expression of the blooming boys forms a very pleasing contrast. The picture is of Titian's middle period the execution very careful, the colors clear, especially in the flesh, which is treated in a bright golden tone. Unhappilly this masterpiece has suffered not a little injury—for instance, the right hand of the old man, and the hand of the boy on the left."*

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* Called *La Senseria.* and conferred on the best painter only; this constituted its value.

In the Bridgewater Gallery, are no less than five of the master's works, and all great pictures! It is true that one or two have suffered by cleaning; nor are they all of equal value. The two Dianas, the story of the Nymph Calisto, namely, and that of Actæon, exhibit those powers in landscape for which Titian enjoys so well-merrited a pre-eminence among the great painters of his own time; nor, indeed, is the landscape of the "Ages of Life" less charming; nay, for ourselves we prefer it to those before named. We do not atempt a description of these pictures, because the liberality of the noble owner gives to all the opportunity for making their acquaintance, and renders it needless.

There is a St. Jerome, by the same master, at Chatsworth, which is quite as well known; and, if less frequently visited, that arises not from want of opportunity, which is most freely given: —few among our great nobles so willing to impart of his vast advantages as the Duke of Devonshire—still less from the want of inclination. It happens solely because of the distance between the picture and that great obsorbing London, which swallows men up, and keeps them so close within its insatiable jaws and with determination so inexorable, that only at some hurried moments—blest beyond the lot of the common hours—can they find leisure for aught so reasonable and so delightful as a visit to your St. Jerome, O Titian of our heart!

An earlier work of the same great painter, also in England, but not so familiarly known, perhaps, as those named above, is the portrait of the reformer, Martin Bucer, in the collection of Mr. Ingram, of Temple-Newsam. The excellent authority lately quoted has a few words respecting that picture, and these state a fact which is one of my motives for citing the portrait of the reformer, to the exclusion of a certain other works pressing their claims on my attention. The fine and delicate feeling for Nature, and the tender and earnest execution," says Dr. Waagen, indicate the earlier time of Titian, when he painted the Tribute Money at Dresdon, with wihch the light transparent golden tone agrees; unquestionably the finest picture in the collection."† *When he painted the Tribute Money at Dresden.* Now this last-named picture will very probably be known to many, more especially of our younger artists, to whom the Bucer may never have been mentioned; the writer distinctly remembers the particular quality alluded to as existing in the Dresden picture —of which more hereafter—and a work meriting to be named therewith, in the estimation of so profound a student and so severe a judge as is Dr. Waagen, may well repay the artist for more of toil than is involved in a visit to the West Riding of Yorkshire.

Temple-Newsam, though in the neighborhood of Leeds—a very beautiful region by the way—is happily some good three miles or more from that sooty emporium of the cloth-workers. I had however, almost said that, for the saks of this admirable portrait, you might almost venture on facing Leeds herself! But I make pause: it is a question demanding counsel, and I take time to consider. Memories of so dun a color rise before me as I recall the heavy canopy of smoke under which the great murk town sat brooding, as we ourselves approach her bounds, that—'tis well to be cautious in matters of moment—metinks the point were better reserved for the decision of the judges.

Meanwhile, and because the said judges "notourly" a heavy-going *engeance*, I may as well repeat, while they deliberate, that she hath made her seat in very paradise—the discriminating Leeds—also, her sons are of the highest intelligence, and the most kindly courtesy, insomuch that you—having more courage than this poor field-haunting scribe, who hateth towns worse than she hateth sin,—more's the pity! mortally hateth them (their glorious Arts ever excepted), may even find the presence of the great busy place an additional attraction; more especially, if you consider rightly what good boys her children were, and how well they learned their lesson when—

> "Athene taught their hands to flash along
> Her famous looms."‡

Much more difficult of attainment, and rendered so not by distance only, are two most precious works of Titian, guarded from gaze profane at longford Castle—garded jealously, as well beseems their worth—but I would that the noble owner of the Dudley Collection, and other great possessors equally liberal, could make their example avail to procure for desiring eyes an occasional sight of those Longford jewels of Art.

"Sure the eyes of us wouln't hurt them much, your honor." But we refrain from further entreaty: far be it from us to hint even a wish that should seem to question the right of property to exercise all the privileges appertaining thereunto. The boldness of intrusive curiosity may have demanded repression; and his lordship of Radnor has, doubtless, excellent reason for not extending to the lovers of Art those valued facilities so generously accorded by others of our great proprietors "in that sort."

One of these Wiltshire pictures is a portrait of Cæsar Borgia, indubitably authentic, whether as regards the master, of whom it is a most precious example, or the subject; for that this is indeed Cæsar Borgia none acquainted with the characteristic features of his family can doubt. Many of our readers will remember the portrait of this personage in the gallery of the Borghese Palace, in Rome; the work is commonly attributed to Raphael, but good judges doubt the authenticity, and not without reason; the writer has heard more than one competent authority affirm the picture to be by Giovanni Penni, better known as Il Fattore. Be this as it may, the firm determined attitude, the decision of gaze, and frank boldness of the whole aspect—a boldness far removed from bravado—which distinguishes the Borghese portraits by no means impress the beholder with the conviction that Cæsar Borgia was that monster of wickedness some writers would make him. Violent without doubt, and so far dangerous—but *evil*, no!—the Roman portrait does not proclaim this. That by Titian at Longford, on the contrary, although recording the traditional beauty of the race, and presenting sufficient evidence of ability, implies a character almost irredeemably bad. Give him none of your trust, ye who deal with that base and treacherous man! but you will not: who, having looked upon that countenance, but must hasten to guard himself from all contact with the owner?

Great is the power of him to whom hath been accorded the high privelege of genius! Great is the power, but, O, most awful the responsibility! Here is a man condemned to bear witness to his own turpitude through countless ages!—compelled remorselessly, by the great exorcist whose wand of resistless might was a pencil, to be himself the exponent of his own evil nature; to admit for the comprehension of every beholder all that he would so fain conceal. Just and upright should be the fiat of one holding this vast power, for his decision is final; who, for example, having looked on this portrait could longer question the depravity of Cæsar Borgia?

In the Dresden Gallery is a further proof—if any were needed —that Titian had adopted the opinions of his day as regarded the family of Pope Alexander VI.; this we find in the character he has given to the sister of Cæsar, whom he has introduced as a suppliant, into a picture of the Holy Family, doubtless because her husband, Alfonso of Ferrara, had commanded that the portraits of his wife and himself should so appear, as was usual in similar cases at the time.

Here, however, it will be good to remember how potent is the love of the marvellous in all ages. The pontiff and his family once made subject for the tongues of rumor—nor to prejudge the question by saying calumny—he who could relate the most wonderful story would obtain the most eager circle of listeners: and that the Venetians were like the Athenians, in their love of hearing some new thing, none who are familiar with the intimate history of the period can doubt. How amusing, for example, are the "despatches" sent by the Venetian ambassadors in Rome to their "most illustrious and most dread masters"—I Signori. But enough of this, and to the picture.

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* See Dr. Waagen. "Treasures of Art in Great Britain," vol. i. p. 393.

† See Art-Treasures, *ut supra.* vol. iii. p. 334. It is of the Temple-Newsam collection that Dr. Waagner speaks when he calls this work—and justly—"the finest picture."

‡ Mrs. Browning, when Miss Barrett; I quote from memory, and have a dim suspicion that the "Anthene" should be rather Pallas; but then I have not the other word required, in that case, by the measure, and, if there be error, will beg to be forgiven for it.

Alfonso, the first duke of Ferrara, is represented as accompanying his wife, Lucrezia Borgia, while the latter offers her devotions to the Virgin and the Divine Child. His face, evidently a portrait, serves to convince you that if the master held no favorable opinion of the duchess, neither had he been impressed with much respect for her husband. The "manner of being" of Alfonso intimates that propriety of deportment expected from his rank, and his figure has a certain elegance; but the head is heavy, the features devoid of interest, and the expression betrays weakness. He stands partly behind the duchess, whom he seems anxious to detain, or at at least to address; and this he does exactly at the ill-chosen moment that a man such as he might have selected, but no other, for her hands are already folded in prayer. Lucrezia has placed her little son—afterwards Ercole Secundo—between herself and the sacred personages composing the Holy Family. You would say she has brought the innocence of the child to intervene between herself and those whom she must feel unworthy to approach: but as you regard the countenance Titian has given her, you doubt whether any feeling so natural, any thought so becoming and so suitable—her condition considered—could be entertained by a woman exhibiting that expression. Beautiful—as everything professing to be the portrait of Lucrezia Borgia must be—of imposing presence, and with that firm uprightness of carriage wherewith one gladly associates the idea of moral rectitude—one would fain give her the advantage of so construing her appearance; but those sidelong eyes forbid the interpretation, and half compel you to believe that her accusers were not all calumniators, as, from certain considererations that cannot here be recapitulated, the present writer has seen reason for hoping.

The Virgin has a book on her lap, and, her attention being fixed on that, she has not yet raised her eyes to the princess; St. Joseph gazes fixedly on the duchess, yet not with looks of approval, and the Divine Child pressing closely to him a bird which he holds in his hands, as fearing spoliation, or some injury to the little creature, at the hands of the ducal family.

This work, if not among the very finest of the master, yet exhibits many of his qualities; but these are too well known to need description. There are, besides, works from Titian's hand in the gallery at Dresden which press imperatively on the attention, and would more than fill our space had we yet space at command; the bounds accorded are, however, already overpassed, and all mention of these must be deferred to a future occasion.

From La Lumiere.

NEW METHOD FOR PRINTING POSITIVES.

Translated from the French of Alfred Moitessier.

BY W. GRIGG, ESQ.

In a previous number we gave a cursory view of the different operations forming the basis of our method; we shall now take them up one by one, dwelling at length on the most important. And first we shall devote a few lines to the arrangement of the camera and negative, as thereon depends in a great measure, the success of the proof. This arrangement may be varied according to the circumstances under which we operate: we will mention the course we have adopted, leaving each to modify the same according to the circumstances of the case.

We make in our window shutter an opening of the size of the negative. To this aperture we adjust slides on the inside of the apartment, into which we slide the negative. On the outside we have another slide, into which we fit a piece of ground glass. This glass limits the transparency of the negatives, as otherwise we could see objects behind. To copy the various size negatives we might have a larger opening, into which we could fit frames of different dimensions. No light should penetrate the apartment except through the negative, the printing of the positive depending on this condition. A window exposed to the sun is best, if it can be obtained, as greater rapidity will be the result; but this, as we shall see, is not indispensable, as our method enables us to draft in cloudy and even in bad weather—which is somewhat different from ordinary processes.

In front of the negative we arrange an ordinary instrument, in the same manner as in copying. The negative is then depicted in the camera, its size depending on the distance between it and the instrument, and the focal length of the object glass. All object glasses may be indiscriminately employed, whether simple or compound—the latter, however, possess the inconvenience of chemical focus, and are very troublesome when used for this purpose; their results moreover are generally less clear than the simple view instrument. Great clearness nevertheless, may be gained in the use of properly adjusted diaphragms; they should be placed between the two lenses composing the system, and not before the foward lens as is generally the case. We thus obtain very pure pictures, without diminishing the field of the glass, as with diaphragms placed before. We use with much advantage simple view glasses, of from 11.70 in. focus to 15.60, capable of furnishing pictures of every dimensions. The focal distance being known, we may, by very simple calculation, determine the length to be given the camera in proportion to the negative, to obtain a picture of given dimensions. Thus to make a copy of the same size of the original, the length should be double the focal distance; it should be greater for magnifying and less for reducing. A glass of 10-in. focus, would necessitate a camera of about 78-in. for life-size portraits with negatives such as are usually obtained by normal plate instruments. We can only as may be easily conceived, give approximate figures, the same object glass being capable of furnishing portraits of various dimensions. For magnifying we generally use short focusses, from 7.80 in. to 9.76 in. and even less. If the object be small, we will be the better enabled to keep ourselves within these limits, without causing any malformation, besides we thus avoid the inconvenience of long boxes. It is needless to observe that in proportion as the length of the camera is increased, its distance from the negative must be diminished. We will no longer dwell on these details, as photographers are perfectly acquainted therewith. For positives not larger than the half size, we employ a very simple apparatus, by which we can draft four proofs at the same time instead of one, by means of this instrument. One can very easily obtain in the course of an hour, from twenty to twenty-five proofs ready for delivery; this far excels the systems ordinarily employed. Our apparatus is composed of four small object glasses of an inch diameter and 11.70 in. focus. Each of these glasses is mounted on its separate block. In front of the camera four slides are fitted diagonally and designed to receive each of the glasses with its block. This arrangement enables us to bring the system of glasses nearer together or to separate them; they should be capable of being moved from 2.43 in. to 3.32 nearer together or farther apart, with a camera of from 8.20 to 10.54 in. length, in order to satisfy the requirements of the different size pictures.

With such an apparatus it will be perceived, we obtained four impressions of the same object, all possessing the like clearness, provided the four object glasses have perfectly identical focal lengths. It will doubtless be objected that this would cause some malformation in the picture, as the centres of the object glass and negative do not correspond—this is mathematically the fact, but practically this malformation becomes totally inappreciable, if we confine ourselves within the limits we have indicated, and employ glasses of sufficiently long focal range. It is evident that this only applies to reductions and in nowise to amplifications; the positive should never exceed the third or quarter of the size of the negative. Under such conditions, there is no perceptible malformation. In the case of very small proofs, for visiting cards for instance, we may draft sixteen proofs at the same time. If an engraving, we begin by making a negative of it with the four glass instrument. We obtain thus four images of the same glass, and this glass treated as an ordinary proof with the same instrument, furnishes at one stroke sixteen positives; each object glass then giving four proofs. But as we have said this is only applicable to very small proofs.

The interior of the camera is divided into four compartments by two partitions—one vertical the other horizontal whereby the action of each object glass may be brought to bear on its distinct portion of the plate. This arrangement is of the highest importance as without it would arise a conglomeration of the rays from each instrument, producing, as may be supposed, a confused and veiled picture. These should be colored black so as to absorb all the light they receive.

Arrangement of the Instruments—Formation of the Picture.—Collodion, as we have before observed, is the sensitive we make use of for positives, and its mode of use but slightly differs from that given for negatives. The preparation of the glass is precisely similar in the two cases. There is one important requirement to be observed as regards the collodion. That generally used in the production of negatives gives excellent results, but its fluidity, however, is too great to facilitate the transition of the proof; by increasing, however, the proportion of gun cotton we may render it more glutinous, yet it is difficult to determine the precise proportion, as we often see equal quantities of cotton producing very different viscidity. It is therefore indispensable that we make some prior experiment to ascertain the proper proportion. It is sometimes necessary to increase the quantity of cotton 2 per cent., while at others a less per centage is required. We merely observe then that the collodion requires to be as thick as possible, and at the same time retain its facility in spreading. As to the nature of the iodide, we find it to be of the slightest importance; we employ indiscriminately the iodides of zinc, cadmium and ammonium, with equal success. Sensitiveness not being a condition of success, we are left to our choice; iodide of zinc however, being more constant in its nature, we should accord to it the preference. The glass, having been collodionized by the common process, is sensitized in the silver bath (nitrate of silver 10 grammes, distilled water 150 grammes), and immediately exposed in the camera.

The time of exposure is of great moment, yet cannot be precisely determined—it may vary according to circumstances, from 10 to 15 minutes. The intensity of the light—the transparency of the negative—the focal length of the object-glass—the size of the diaphragms—the sensitiveness of the collodion, &c., are so many causes exerting vast influence on the rapidity of the action. In the case of a collodion negative of ordinary intensity, working with the sun and an object glass of 11.70 in. focus and a diaphragm of 5.85,* the positive in the camera will generally take from one to two minutes. To magnify it will require more time, and contrary for reduction. Pictures on paper generally require a much longer exposure—sometimes a quarter of an hour and even longer.

Experience therefore can be our only guide; a trial proof gives us more valuable information, than all that could possibly be said on the subject. The four glass instrument previously described, is of great advantage in determining with precision the time of exposure. To each picture a different exposure may be given, so that by a single proof we may be enabled to resolve the problem at once.

By varying the exposure, we may also with the same proof, obtain positives of very dissimilar character, which result may be made profitable in a variety of cases. Thus by a short exposure, we obtain a proof presenting decided opposition, and which by still reducing the exposure, we may carry to harshness. On the other hand by prolonging the exposure, the proof acquires greater softness, the oppositions disappear, and at last the effect becomes completely distroyed, and we obtain perfectly gray proofs. The results as is seen, are analogous to those produced by differences of concentration in the bath of silver used in sensitizing positive papers. It is well known, that a picture which gives a very soft proof in a weak bath gives a harsh one with a bath more concentrated. We will merely observe that by the ordinary processes, it is difficult to profit by this advantage, being confined to narrow limits, while by our method we are enabled to turn it to the best account. In fact we may by an excess of exposure, advantageously soften the harshness of a negative, and by the contrary method draw some useful result from an ineffective and weak negative, which on paper would be utterly worthless. The picture is developed with pyrogallic acid in the same manner as negatives, with this simple difference, that the solution must be weaker. We make one of the following proportions:

Pyrogallic acid................	1	gramme.
Distilled water................	600	"
Crystallizable acetic acid.........	10	"

This liquid should be evenly spread upon the glass, keeping the hand in continual motion as in the developing of a negative. The picture should appear at once, and arrive soon at very perfect development; if the action be tardy, some fault in the exposure is certainly indicated, and the final result would be harsh and wanting in the mezzo-tints. It is not always necessary that the action be excessively rapid, otherwise an imperfection of an opposite nature would result, the proof would be gray without any oppositions. The like effects would arise if, with the proper time of exposure, the action of the pyrogallic acid was over or under prolonged; although it is difficult to give any precise directions in this regard, we will however give a minute as the mean time sufficing for the development of the picture.

The degree of concentration of the bath of pyrogallic acid we have just indicated, is such as we make use of in the majority of cases, and such as may be employed successfully under all circumstances. We often find it advantageous, however, to somewhat modify it according to the requirements of the negative. For instance, in the case of a negative of strong oppositions, much advantage results from increasing the exposure, and developing with a weaker solution of pyrogallic acid; the proof obtained possesses much greater softness, as by the above means we give the mezzotints time to develop before the blacks have assumed intensity under the influence of the weak acid. The ordinary solution may be diluted with two or three times its volume of water, according to the oppositions of the negative.

In the case of a ineffective weak negative, on the contrary, we may then diminish the length of the exposition and somewhat increase the concentration of the developer. An effect of a totally opposite nature is the result, *i.e.* the blacks of the positive assume their intensity before the mezzotints are developed, and by arresting the action in time, we may at will obtain every degree of opposition in the picture. We may in this case, according to the circumstances, double the proportion of the acid, but as this only becomes necessary in the case of very feeble negatives, it is seldom we will be obliged to make use of so strong a bath. It may readily be perceived to what account an experienced hand may turn these modifications of the developing bath; but we should advise the operator to accustom himself at first to work without recourse thereto, and to use this expedient only when he has become complete master of all the minutiæ of the process.

We would here call the attention to an accident which often occurs in developing proofs, whether positive or negative. Every photographer using collodion, has certainly experienced a particular obstacle in spreading the pyrogallic acid evenly upon the glass. In fact, it often happens that the glass takes up the moisture with difficulty, and the consequence is that the liquid runs in little rivulets over the surface, giving rise, by its unequal action, to numerous irreparable imperfections. Ascending to the causes which provoke this mischance, we are satisfied that it arises, not in the pyrogallic acid or collodion, as is generally imagined, but in the bath of silver used in sensitizing. In short, when this bath has been in use sometime, it becomes charged with alcohol and ether, given up by the collodion. The large quantity of liquid on the surface then refuses to combine with the pyrogallic acid and hence the above defects. What goes strongly to prove that such is the cause, is that the thing never occurs in using a new bath of silver, and that by curing the defect either by leaving the old bath exposed to the air, or by boiling it and thus removing by evaporation its ether and alcohol, the obstacle disappears. The glass may also be washed with distilled water before pouring on the pyrogallic acid, in which case it is necessary to add a few drops of nitrate of silver to replace what the glass before contained.

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* Comparing this with the focal length, it appears to be a typographical error.—TRANS.

Some photographers advise the addition of a little alcohol and collodion to the sensitive bath, but we in nowise approve of the admixture, which not only endows the collodion with no other quality, but gives rise to chances of failure which it is highly important to avoid.

COMPLETION OF THE PICTURE.

The proof being developed as above described, it is to be carefully washed and fixed by the ordinary method. We use a solution of hyposulphite of soda as for negatives:

Hyposulphite of soda............	15 grammes.
Water..........................	100 "

But we prefer the cyanide of potassium, which appears to give the most agreeable tones. The solution of this substance, by reason of its energetic action, should be employed very dilute as it would otherwise attack the proof by a prolonged action. We use the following proportions:

Cyanide of potassium..............	5 grammes.
Water..........................	500 "

Pour this liquid on the glass, and repeat once or twice if necessary. Its action is at an end when all the parts of the proof unaffected by the light have been dissolved, and are perfectly transparent—it should be then thoroughly washed and the excess of cyanide removed.

In the case of pictures which are to remain on the glass and produce their effect by transparency, stereoscopic proofs, for instance, it is sufficient to let the glass dry; a proof seen by transparency, presents a very disagreeable tone, which it is not necessary to remedy. But not so with a proof to be transferred to paper. Several operations are to succeed the fixing for the purpose of changing its color, which otherwise would be highly disagreeable.

We know that by reflection, negatives are more or less positives—they are *amphitype*. An analogous effect is necessarily the case with positives viewed by reflection; and it is precisely this effect which it is important to destroy, as it may quickly be perceived that its transfer would be accompanied with a negative appearance of the picture. The latter in fact, presents a very disagreeable yellowish gray tone, rendering our method totally impracticable, could we not easily change these tones to black or sepia. This we accomplish with facility in the following manner:—The proof, being fixed and carefully washed, pour thereon a saturated solution of bichloride of mercury. The first effect of this liquid is to slightly darken the picture, but soon it becomes white and takes the character of a perfect negative when viewed by reflection. The action of the bichloride is ended when the picture has assumed a smooth perfectly uniform white appearance, requiring from one to two minutes. We may besides remark that the action of this liquid may be very long continued without producing any noticeable difference in the results. The action being terminated, wash thoroughly, and cover the proof with a weak solution of hyposulphite of soda:

Hyposulphite of soda...........	30 grammes.
Water..........................	500 "

Under this influence, the color immediately changes to the most agreeable velvet black: if the exposure has been long and dilute pyrogallic acid used as a developer, we obtain the sepia tones.

That the action of the pyrogallic may be regular, it is important to rid the proof completely of the bichloride of mercury by proper washing and well drained off thereafter, as without this precaution, the large quantity of water on the surface will prevent the hyposulphite from uniformly speading, becoming unequally concentrated on divers parts of the picture, and thus producing defects which nothing can remedy. This operation finished, wash the proof with care, and it is ready for transfer.

The operations we have enumerated may appear long and difficult, but allow us to observe that what may seem complicated when trammeled by description, is of the extremest simplicity, and in practice is very quickly executed. Little as one may be acquainted with photographic manipulations, he will encounter no serious difficulty, and a very few experiments will enable him to obtain the most satisfactory results. We cannot, however, too strongly recommend the attentive care we have advised, and especially the scrupulous washing of the proof after the action of each particular chemical, as thereon depends our success, and we therefore deem it unnecessary to put the operator on his guard against a cause of failure so easy to avoid.

There now remains the transfer of the proof, an operation of much simplicity, presenting no difficulty, if the collodion employed be of proper consistency. The choice of the white body on which to transfer is of the highest importance, and after many fruitless experiments we have chosen porcelain paper, which is admirably suited to this operation.

Common paper presents a very unfavorable grain, and the collodion does not adhere: it is true we may employ some sizing, albumen or gelatine; but this does not destroy the grain, and on drying, morever, the proofs fold and crack, which result can only be prevented by long and difficult manipulation. Porcelain paper, used in the manufacture of visiting cards, possesses none of these disadvantages. It is very smooth—the collodion adheres to it perfectly without any intermediate sizing, and dries without the least accident. It will be confessed that taking all these advantages into account, to it should be accorded the preference over every other substance.

The following is the mode of transfer:

Porcelain paper should be previously cut into sheets somewhat smaller than the glass, and immersed for a short time in a full basin of water. The glass being then placed on a horizontal stand, pour as much water upon the suface as it can retain, and apply the sheet avoiding bubbles of air; then hold the glass in a perpendicular position, retaining the sheet of paper by two corners to prevent its sliding off, and keep it in this vertical position for a few moments to drain off the liquid. This done, lower the collodion with the finger at each of the four edges of the plate and lay it upon the sheet of paper, holding the paper and collodion at one corner; and raising gently the proof will separate easily from the glass: it may then be dried, either spontaneously or by exposure to the sun, or at a gentle heat. Porcelain paper presents a much more even surface than the other kind, and it is needless to observe that it is this which must be placed in contact with the picture. This operation we repeat, presents no difficulty, and is attended with constant success with a collodion of proper consistency.

Such is the method we to-day confidently propose. Having been a long time employed by ourselves and numerous photographers, to whom we have communicated it, it has already furnished a vast number of proofs and is therefore sactioned by long experience. Although of general application, it lends itself however, more particularly to the production of proofs ordinary dimensions, and for portraits especially. We think we may also assert, without going too far, that it is the only method by which we can obtain portaits of the life-size, and we are able to show very satisfactory results in this respect; it is also the only process capable of giving sufficient perfect microscopic reductions—a difficult rock for photography on paper. We hope skillful hands will take it up and draw forth all its useful applications, and we shall be happy ourselves to profit by the improvement more experienced operators will not fail to make.

A. Moitessier.

An amateur in Bombay has found that 30 grs. of iodine, dissolved in 1 oz. of alcohol, once floated over the plate, which has previously been coated with pure albumen, sensitized in a 60 gr. nitrate bath, to which 10 drops of nitric acid had been added, is as rapid as collodion.

For the Photographic and Fine Art Journal.

NEW AND QUICK METHOD OF OBTAINING NEGATIVES.

To the Editor of the Photographic & Fine Art Journal:

The following process, I believe, has never yet appeared in print, and if you think it of any value to the "fraternity" it is at your service to do with as you please.

Clean your plate, coat with collodion and sensitize (with same solutions as used in the usual positive process), expose the usual time required for positive pictures; develope wash and fix with hyposulph. soda *in the dark room,* and wash again perfectly. When every trace of hypo. has been very carefully washed away, take a phial containing a small quantity of the solution of nitrate of silver (about 30 gr. to the oz.), and pour a small quantity (enough to flow over the surface) over the plate. Pour back the surplus nitrate into the phial, leaving a very thin film of it over the surface of the collodion. Then pour on quickly a solution of about—

Protosulphate of iron	3 oz.
Alcohol	3 oz.
Acetic acid No. 8	3 oz.
Water	1 quart

The strength of this developer is to be varied in proportion to the size of plate, &c. It should be allowed to remain on the plate several seconds (from 10 to 15), when it must be poured off and the plate again carefully washed.

If the intensity is not then great enough, the nitrate and developer may again be applied as before, and in fact any intensity may be obtained, even to the entire obliteration of the picture, by repeating the operation as described.

Each operation of increasing the intensity requires less than a minute, and if the first part of the process is properly conducted, the required intensity may be obtained in four or five "doses," so that an intense negative can be entirely developed by this process, in from five to ten minutes.

I am, very respectfully, yours,

ROBT. SHRIVER.

From the Comptes Rendus of Dec. 29, 1856.

DRY COLLODION.

A. *Amber Varnish*—

Yellow amber	40	grammes.
Chloroform	150	"
Ether	150	"

Powder the amber and mix—then filter.

B. *Collodion*—

Ether	200	grammes.
Alcohol	80	"
Cotton	6	"
Iodide Ammonium	4	"

Amber varnish A. mix and filter.

All these ingredients chemically pure.

C. *Nitrate Bath*—10 oz. silver to 100 of water,
Add 10 parts of acetic acid.

Wash and dry—will keep a month—must be developed within 36 hours. Before developing plunge the plate in a bath containing 3 or 4 grains to 100 grains of water; let it dry 4 or 5 minutes—develop by the ordinary methods. When *positives* are taken some precaution must be used; when finished, dry with a spirit lamp, and when cool pour over the amber varnish A. If left to dry spontaneously, it takes three or four days; when dry, remove the silver powder with a piece of cotton. Give it a coat of benzine varnish, made of copal, 10 parts to 100 of benzine: it possesses great limpidity and does not change color by exposure to the air.

Plates prepared and sensitized in advance, can be used for portraits. It is sufficient to put them in a 5 per cent. solution of nitrate of silver, slightly acid, and use them wet. The time is the same as by the ordinary wet method.

AN AMATEUR.

From La Lumiere.

JOSEPH NICEPHORE NIEPCE.

Extract from Photographic Sketches. From the French of Ernest Lacan.

BY W. GRIGG, ESQ.

In a modest cottage near Chalon-sur-Saône on the 5th day of July 1833, a man was lying on the bed of death. Two individuals only, his wife and son, were kneeling near his pillow to mark his last difficult breath—the widow and a few friends conducted him to his final repose. His death cast sorrow over the intimate few whom he had known in life—and this was all. Over his tomb no funeral sermon—to his name no obituary in the journals of the day; yet this man who to his dear family left nought but the fiends of poverty—devised and bequeathed to the world one of the grandest discoveries whereby the present age is enabled to enfold herself in a mantle of glory. This man was Niépce—this discovery of photography. Twenty years have now elapsed, and yet this name is still unknown to the multitude. When we behold the sublime works that this discovery has conceived and brought forth—when we gaze at the collections of those who have made the subject their art; and when gradually ascending the scale of time and distance to the source of these wonders, our soul speaks forth with admiration and gratitude towards him who hath begotten them, but it is another name that fills the mind,—the laurels of the master, are bound around the brow of the disciple.

It is full time that this hallucination ended, and that each received his share of glory. Enough, full enough is there to satisfy two ambitions.

What then was Niépce, and what his work?

Joseph Nicephore Niépce, born at Chalon-sur-Saône, the 7th day of March, 1765, belonged to a family distinguished in the judiciary. His father, Claude Niépce, Esq., counsellor to the King, receiver of deposits for the department and chancery district of Chalon, espoused Mlle. Barrault, daughter of a talented advocate. Their issue was four children, of whom Nicephore Niépce was the second.

His life prior to the year 1792, was that of a man who feels himself beyond the power of the demon—Want. Gentle, witty, somewhat cutting in his expressions, a mediocre poet, and consequently rather careless, he lived on without ever enquiring whither he was tending. Unlike the present day, men were not in such haste to enter an active military life, and although they might have gained as much honor perhaps as in our time, they sought it less early. Niépce, whose nature was naturally pensive and observing, as he proved at a later period of his life, was to be among the number of the most tardy. But when the gloomy days of Terror burst forth, when the commotions of civil war penetrated even to the heart of the tranquil and domestic fireside of the honest deposit receiver, then did Niépce comprehended the necessity of grasping something of solidity amidst the general crash, and to attain some position by which he might confront the contingencies of the future. In the dangers of revolution, the bearer of arms is the safest, because there doth the forlorn hope of order and authority seek refuge; Niépce felt this and he became a soldier. In the quality of a sub-lieutenant, he entered the 12th (late Limousin) regiment of infantry May 10, 1792. A year after, May 6, 1793, he passed with the grade of lieutenant to the second battalion of the 83d demi-brigade, and was engaged in the battle of Cagliani (Sardinia); in Italy he was engaged in two battles. The 8th ventose year II.,[*] he entered the staff of Adjutant-general Frottier. At this period, he was seized with an epidemic malady which infected the army. This circumstance, added to the extreme feebleness of his eyesight, forced him to abandon a career in which he had already distinguished himself. His destiny was not there. The 30 brumaire[†] year III., he obtained a position much more in accordance with his precarious health, his peaceful taste, and the gentleness of his character. He was appointed administrator of the district of Nice, which then belonged to France. He filled the office till 1801. In the meantime, the tempest of revolution had subsided—there was a calm—no more did the foot slip upon the soil of this poor country which had before trembled from its very depths. Men came from all directions to resume possession of their native land—how natural and how right!

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[*] Sixth month of the first French Republic.

[†] Second " " " " "

Niépce also again sought the paternal fireside, but not alone—with him he brought three cherished beings to increase the family circle—his wife, his son and his eldest brother, who, after a long and dangerous voyage, had rejoined him at Piemont.

Here then commenced his true existence.

Calm in his retreat, encompassed by those who loved him, freed from pre-occupations which command the best portion of our mind, he felt stirring within him that something which Chènier regretted on the scaffold, and which vaguely announces to man that his intellect will be fruitful, as the first quivering of the womb assures the woman that a child shall be born of her. He felt that he was to grasp one of the grandest secrets of nature, and ignorant as to which, he commenced his labors. At first, as is almost always the case, he mistook the road. His brother was engaged in mechanics; they divided their labors, inventing many extremely ingenious machines, though drawing no benefit therefrom.

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In the postcript of one of his first letters, we find the origin of his relations with Daguerre.

"Are you acquainted," says he to M. Lemaitre, one of the inventors of the *Diorama*, "with Mr. Daguerre? I ask you the question for the reason, that this gentleman having been informed, I know not how, of the object of my researches, wrote me during the month of January of last year (1826), acquainting me that he was engaged in the same object, and to ask me whether I had been more successful than himself. Yet, to believe what he says, he had himself at the time obtained astonishing results; notwithstanding this, he begs me to inform him whether I think *the thing possible.* I will not disguise from you, sir, that such incoherence of ideas, to say nothing more, surprised me. I was much more discreet and reserved in my expression, and I answered in a suitable manner to provoke a reply on his part. I only received it to-day, that is to say, after a lapse of more than a year, and he writes me merely to know where I am, and to beg me to send him a proof."

Thus commenced their correspondence.

Niépce took a voyage to Paris, when he saw the painter of the Diorama; the latter showed him none of his experiments, not thereby preventing Niépce, however, from communicating some of his, as is shown in the following passage from another letter addressed to M. Lemaitre, Oct. 4, 1829:—"When I was in Paris, and even since my return, M. Daguerre expressed to me his desire of knowing the result of my new *heliographic* researches. I have, therefore, just sent him a proof (silver plate) taken in the camera from nature, begging him at the same time to communicate with you, presuming that this experiment, full of defects as it may be, may be of interest to you, perchance in the light of a novelty. I beg you to observe, sir, that this view, taken in my country workroom, must needs be totally defective, as the object during a part of the operation is illuminated from behind, or at least in very oblique direction, necessarily producing a shocking disparity in the results. But from the faithfully rendered details, you may judge what under different circumstances these results might be, of which a proof I have just taken, has given me complete assurance . . ."

Lamaitre called on Daguerre and wrote as follows to Niépce after the visit:

" . . . . Being acquainted with your various experiments for the copying of engravings, your view from nature taken in the camera has not surprised me, but has afforded me infinite pleasure, more especially while remembering it was the reproduction of nature, without other manual labor than the previous preparation necessary to obtain it."

The greatest difficulty in the way of Niépce's progress, as may easily be comprehended, was the imperfect state of the camera. Daguerre had improved this instrument, and it was this reason that led Niépce to propose an association of their labors, that each might mutually aid the other in improving a discovery which had cost him so much toil and sacrifice. What cared he if the laurels were divided—the child of his genius would live—ay, attain magnificent proportions!

An agreement was formed between the artist and inventor on the 11th day of December, 1829. We would wish that space permitted us to insert the whole of an instrument of such high importance, and which is so little known. We will copy at least the principal clauses.

"Between the undersigned, Joseph Nicephore Niépce, etc., and Louis Jacques Mandé Daguerre, etc. M. Niépce having discovered the means of spontaneously reproducing the representations of the camera obscura, and M. Daguerre, to whom he has imparted his discovery, fully acknowledging the importance thereof, especially in its being capable of great improvement, proposes to join with said Niépce, in order to the furtherance of said improvement, and to form a co-partnership whereby they may be enabled to draw every advantage possible from this new branch of industry. The said parties have therefore agreed upon the following conditional and fundamental articles of association:

Art. I.—The said parties do agree to become co-partners together, under the firm name of Niépce and Daguerre, in the improvement of the said discovery, *invented* by Niépce and *improved* by M. Daguerre.

Art. II.—In case of the death of either of the said co-partners, the said discovery shall be published only under the firm name mentioned in the previous article.

Art. III.—Immediately after the signing and delivery of the said agreement, said Niépce shall confide to the said Daguerre, under the seal of secresy, which is to be preserved under penalty of all damages, etc., the principle of his discovery, and to furnish the most precise and circumstantial documents relating to the nature, the employment, and the different modes of application of the processes connected therewith.

Art. IV.—M. Daguerre agrees under the aforesaid penalties, to preserve the strictest secresy as well as regards the fundamental principle of the discovery, as the nature, employment and applications of the processes, which shall to him be communicated, and to co-operate as far as in him lies, towards the improvements which may be considered necessary to the best of his knowledge and ability.

Art. V.—The said Niépce is to deliver in as capital stock his *invention*, representing the value of half the gain which may be derived therefrom; and the said Daguerre is to *deliver in, a new combination of the camera obscura,* his talents and labors, equivalent to the other half of the aforesaid gain.

Art. XIII.—All alterations and improvements made in the said discovery, as well as all improvements in the camera, shall be and shall remain in the said co-partnership to the profit of the said copartners. And they hereby agree that when they shall have attained the object which they propose, to make and enter into a further and definite agreement between themselves, on the basis of the present.

Art. XIV.—The partnership gains shall be equally divided between the parties—one half to M. Niépce as *inventor*, and one half to M. Daguerre, for his improvements.

Signed in duplicate.

Chalon-sur- Saône, Dec. 4, 1829.

I approve, although not written by my hand.

J. N. Niepce.

I approve, although not written by my hand.—Daguerre.

Filed at Chalon, March 13, 1830, F. 32.9c and following. Received 5 fr. 50c. 10th, included.

(Signed) Ducordeaux.

This agreement establishes beyond question, that M. Niépce is the author, the *inventor* of the art. Daguerre under his signature acknowledges it himself.

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Ten years have passed. Niépce has died in poverty, a fearful doubt gnawing at his heart, believing all his efforts, all his sleepless nights, all his sacrifices in vain! But behold on the 7th January, 1839, the Academy receives a communication of a discovery by M. Daguerre, which consists in fixing the image represented in the focus of a camera obscura. M. Daguerre *generously acknowledges* that the first idea of this process was given him by M. Niépce of Chalon-sur-Saône, but in such an imperfect state, that long and persevering labor was necessary to accomplish the end. The journals are interested, the public admiration is excited; the chambers accord a national recompense to the *inventors.* But Daguerre takes the first rank in the public gratitude. His pension is 6,000 francs; Niépce's son receives only 4,000. Niépce is dead: no one remembers, that his was the difficult part of the common work, the *invention.* I mistake—a stranger, a distinguished savant, M. Francis Bauer, member of the Royal Society of London, did remember him, and on the 27th of February, 1839, addressed an article to the editor of the *Literary Gazette,* in which he avenges Niépce for the neglect of his countrymen, which article was published. He says in this article, that in September 1827, Nicephore Niépce being at Kiew visiting his brother Claude who was dangerously ill, he made his acquaintance and learned from him that he had *discovered the means of permanently reproducing and fixing the image of the object, by the spontaneous action of light.* Niépce showed him several specimens of fixed pictures on polished plates, and that he called them the *first results of his researches;* he addressed Dec. 8, 1827, a memoir on the discovery to the Royal Society of London.

M. Bauer annexed the translation of this important memoir to the letter published in the Literary Gazette. The English savant also says that Niépce was presented to different members of the Royal Society, to whom he sent his memoir and several proofs; but not wishing to disclose his secret, all was returned and the communication rested there.

On his return to France, Niépce continued to correpond with M. Bauer. His last letter bore date January 9, 1829. Since that time, M. Bauer heard no more either of the discovery or the inventor. His surprise was great, he says, when on the 12th of January, 1839, he learned that M. Daguerre pretended to give his name to "this marvellous art." "M. Daguerre acknowledges," he adds, "that M. Niépce gave him the first very imperfect idea of the process he employs. I do not think that M. Niépce could have given an imperfect idea fifteen years ago, as his specimens, which were in England (and of which some still remain in my possession), are full as perfect as those of M. Daguerre, described in the French journals of 1839!" M. Bauer thus closes—

"If M. Daguerre has lawfully purchased the secret of M. Niépce, it is very right he should reap from it the greatest possible gain, the merit of the invention of heliography will not the less rest with my dear friend, Nicephore Niépce. Before leaving England he gave me several proofs; if any one engaged in the art, attaches any interest to the subject and desires to see these specimens, let them call on me, it will be a pleasure for me to show them and give every necessary explanation."

Thus did he write in 1839, a man certainly disinterested as regards the question.

His efforts were fruitless: the discovery was styled *Daguerreotype.* It has since made and is still making immense progress. The processes are multiplying and assuming new names; they have been collected together under the name of *Photography.* Books have been written concerning its transformations and improvements. The name of Niépce has gradually arisen from the unjust obscurity into which circumstances had crowded it. But though practicians and photographers may know and honor him, he is still unknown to the public in general. This ignorance—this neglect are not for our time. Our gratitude and our admiration must not mistake the name.

We have desired in writing this life of Niépce, in bringing to mind his laborious and fruitful researches, to repair one of these deplorable errors. With M. Bauer—with Daguerre himself in the agreement under his signature, we say—Niépce is the *inventor* of photography. Now, too, Daguerre is dead. We will be just towards him as toward his predecessor. He improved, simplified, brought into use what Niépce invented. But he gathered all the honor of the common labors. In the agreement which joined their labors, he had stipulated that each should have a right to half the gains. To-day, then, when the question is only of gratitude and honor, let us render unto Niépce, at least the half which belongs to him; be honest towards his memory; deprive him not of his just share. Let us not separate these two names which were joined by themselves, and in the annals of grand discoveries by the side of the word *Photography,* let us inscribe the united names, NIEPCE—DAGUERRE.

From the Liverpool Photographic Journal.

ON WAXED PAPER.

BY G. R. FITT, ESQ.

A discussion (in *Photographic Notes*) on the causes of granulation, in wax paper negatives having recently occupied the attention of photographers, it may not be amiss to devote a short space to a consideration of the various causes assigned for this annoyance, and the relative value of the reasons given by various photographers, all of whom may be supposed to possess experience in the matter. I still incline to the opinion that the cause I stated in *Photographic Notes* for September 1st, is the correct one, at least in the great majority of cases. Having just pursued an ingenious and interesting letter by Mr. C. A. Long, in *Notes* for October 1st, I will first notice this gentleman's theory, which I must think is the least probable of all, as Mr. Long seems entirely to misapprehend the meaning of "granular" negatives, and enters into an elaborate and ingenious, and I believe correct explanation, of the "pin holes" in the skies.

He must allow me to say that this is entirely foreign to the subject, and is a source of annoyance entirely distinct from granulation, and one I never met with, except in trying Mr. Crooke's process, where iodide of potassium, iodine, and water are alone used. Iodide of *potassium* causes the same annoyance in the albumenized glass process, and probably Mr. L. is quite right in his theory respecting it; but if he will examine a *granular* negative, he will see that the two faults are *entirely distinct.* In the case treated of by Mr. Long, we have a negative in which the blacks are *full of minute holes,* caused probably by a crystallization of the iodide which as he says, prevents the formation of the sensitive iodide of silver at the spot where it exists, just as any other mechanical obstacle might prevent the action of the silver solution on the paper. The *whites* of the negatives are however *smooth* and the *detail good.* The prints from such a negative being full of *small black spots.* The appearance of a print from a granular negative is entirely different: we may have a sky perfectly white and clear; but it is in the *half-tones* and *lights* of the negative, and the *half-tints and shadows* of the positive that the defect exists—the whole is rough, and the finer details for this reason obscured.

With regard to what Mr. Hele says about impure wax, I think that his supposition is negatived in this way—were the fault owing to the wax or other substance used to render the paper transparent, we should get rid of the appearance on heating the negative, and *while heated* the fault would not exist. But it is quite my experience that this fault is not even temporarily removed by heat, or by re-waxing. It exists *entirely* in metallic silver constituting the picture, owing, as I said, to that silver being reduced from an iodide, which, from *slow formation* is *coarse* and *crystalline.* Paper may be "waxed,"—to use an Hibernicism—with tallow, oil, spermaceti, or sterine; and though these are not equally available, they may be used with varying degrees of success. Bad paper is another cause of failure; and I incline to the opinion, that its unsuitability consists in its being insufficiently permeable to the solutions, and the iodide being consequently slowly formed. I have now before me a negative which is slightly granular in the *centre only;* and this is one made sensitive, with several others, in a dish the bottom of which was higher in the middle than at the sides; the solution would be in this part more scanty, and the same effect ensue.

In the summer of 1855 I lost many weeks of fine weather from being without good paper. My bookseller, who obtained his Canson's paper direct from Paris, had exhausted his old stock and got in a fresh supply; this sample waxed readily, and looked good; but both myself and a friend failed in getting really good negatives with it, and on some occasions it darkened all over in developing. At length I got, amongst a lot of this paper, *four sheets of the old sort*, which I knew in an instant, from its having a yellow tinge, while the new paper was *blue.* I divided these sheets into quarters, having therefore 16 pages 11 inches by 9; one I gave to my friend; one I have now waxed, but not iodized, as I keep it for a sample; and the remaining 14 I have now before me, in the form of superb negatives, taken under all circumstances; one in particular having been exposed in the worst and dullest light in which I have ever tried to get a paper negative. It is one of the finest and most brilliant negatives I ever took or ever saw, and was exhibited at the Liverpool Society in January last.

Lately I met with a sample of paper direct from Paris, and seemingly some of Canson's *old make.* I found it equal to any I ever had, and secured a quantity of it. In the absence of this, I have found "Papier Rive" excellent; being I am sure more sensitive than Canson's, and giving better half-tints than some of the latter.

Bad light is a great cause of failure in the wax-paper process, if distant objects be attempted, and there is any thing like mist or smoke between the objects and the lens. This however holds good with collodion at least as forcibly; but you may have a bad negative from this cause, the whites and half-tones of which are quite free from granulation or wooliness, but the objects appear as they really were in nature, fogged or misty.

A common cause of imperfection is, no doubt, that in using a fresh bath of silver the sensitive iodide is dissolved out from the paper, and I used often to be annoyed with this in my early pictures; the appearance is, however, very *distinct* from granulation. Portions of sky and of the dark parts in the negative will remain almost white, more or less, but the general *structure* of the negative is smooth, sharp, and perfect; the negative might be likened to a sheet of letter-press in which some of the types had been *insufficiently inked.* I have seen negatives where the solvent action of the new nitrate bath had been *universal*, and then the negative would be very faint, and it would be found impossible to develop it by any length of exposure in the gallic acid. During the last summer I went to Roslin Castle with two papers made in a new bath; I exposed them the usual time, but one entirely refused to develop, except the sky which was faint, and the details of the picture were only just visible. The difference between this and an under-exposed negative is, that in the latter it would have been quite easy to get the *sky* and *high lights perfectly opaque* though the other parts might be wanting; but no length of development would bring up the picture I mention. The other paper was imperfect only in parts. It must be remembered that the lights of both these negatives were *smooth and clear.*

Until I took these negatives, I was never quite clear about certain former failures of a similar character, and I now see the reason, and have since always saturated a new bath with iodide of silver, as Mr. Long recommended. I consider all photographers are greatly indebted to Mr. Long for his valuable suggestions, which will point out the remedies for two kinds of failure, but he has not comprehended what I and others mean by granulation. Mr. Sutton has also done essential service to this, as to many other branches of the art, in his Journal. The latter gentleman has no doubt hit upon another cause of granulation, or upon a secret which will eventually elucidate it. In his remarks on the appearance of prints on bromized paper I have *sometimes* found in experiments with this, that a yellow deposit was formed in the lights of the picture which a prolonged action of hyposulphite only partially removed, and what was left formed a granular appearance by reflected light, very similar to the appearance of granular negatives by transmitted light; but as I always employ the *same iodizing solution which contains bromide*, and which in 99 cases out of 100 gives no such appearance, I think I may conclude that bromine cannot be the cause of granular waxed paper negatives. I can now account perfectly for every granular negative I have got on good paper, and also say that I can produce a granular negative at any time, by following the conditions I mentioned in my letters to *Photographic Notes.* I am *certain*, that there is *more than one cause of granulation;* and I am also convinced that one fertile cause is bad or unsuitable paper; but as the causes I give, viz. slow action, or insufficient strength of the silver solution, will unquestionably produce this fault in *first-rate paper*, I think photographers will admit that I am right in my deductions, which are exclusively theresult of long experience and careful observation, combined with a close study of the chemical changes involved in this and other processes.

MODIFICATION OF THE PANORAMIC PHOTOGRAPH.

Translated for the Photographic and Fine Art Journal, from the French of Mr. Belhomme, by ANGE MERCIERU ROSSI: Quarter Master of the late British Legion.

Having had for a long time under my eyes, the correct results, obtained by Mr. Martens, on flexible plate with the panoramic camera obscura of his invention, I have often reflected upon the method of replacing the flexible plate by a looking-glass, because the flexible plate gives only one proof in the reversed sense of the reproduced object. The experiment having been made with an object glass of 15 centimetres of focus turning on itself, is a proof that I have secured the solution of the problem.

I shall indicate in few words, the construction of my machine:

To obtain from the looking-glass the same result as with the curved plate, it was necessary that it followed the objective in its movement, in keeping itself constantly opposite the objective and at an equal distance, so as to prevent the deformation and removing of the reflected objects.

The results have been accomplished in the following manner: Instead of the objective alone, the whole camera obscura revolves around a pivot fixed under the axis of the objective, on an immovable plane. Two small wheels facilitate this movement. In the part opposite the objective, there are grooves under and above. The frame of the looking-glass is placed in a sort of car, so as to enable it to turn around the pivot, supported on the plane by two wheels. The frame is kept in the grooves, by two other wheels fixed to the inferior part of the car, and a third placed on itself.

Placed at one side (the right for instance) of the groove, which is double the length of the car, the camera obscura in turning (to the right) forces the frame to advance to the opposite, in such a way that the looking-glass presents successively, every part of its surface to the narrow slit which gives passage to the luminous beams reflected by the objective. The solution of the problem stands on the above mechanism. Only to practise it, all the different exigencies should be provided for.

From the London Art-Journal.

THE STEREOSCOPE.

To the Editor of the Art-Journal:

SIR,—In the descriptions of this instrument, which have already from time to time appeared in the *Art-Journal*, no place has yet been found for a short explanation of the physiological principles which are involved in the use of it. This explanation, it is true, may have been purposely withholden by former able contributors, either from considerations of the incompleteness of scientific research, or from their belief in its inappropriateness to these columns. Yet, there is neither difficulty nor deficiency in that theory which Sir David Brewster propounded shortly after the publication of the original reflecting Stereoscope, by Professor Wheatstone. And there is no longer any expressed difference—at least, well-supported difference of opinion—upon the matter; nor is there any subject, as we regard it, which is more akin to this very Journal than the physiology of vision, whether of one or two eyes. With these convictions we venture in a very few sentences to supply the omission.

Within the last few years, it is certain that many thousands of people have been charmed to rapture by the relievo prospects of the Stereoscope; and, of these, hundreds have doubtless been arrested by the extreme simplicity of the discovery, and of its Art-appliances. But even of the latter class, it is too probable that most rest contented with the bare knowledge of three simple facts—1st; that they have two pictures of every object of regard in their open eyes at one and the same time; 2nd, that these pictures are, according to the objective character and distance, always more or less dissimilar; and 3rd, that consequently when the two pictures of any view which have been previously imprinted by photographic art on slides, or, so to speak, on cameral retinæ, are represented to their proper eyes, they must, by the mere act of opening their eye-lids, realize the vision of the object or group of objects themselves, and that by simple transference of the pictures to their own retinæ. Now, so far as they go, it is quite true that these are valuable portions of knowledge; and they alone are, moreover, the very facts by whose intelligence the first invention was suggested. But facts though they be, this is by no means either an accurate knowledge or an adequate measure of the whole discovery; and it certainly rests far short both of the extent of modern research, and of the ascertained principles of common vision. The more complete intelligence of binocular vision, which we now proceed to render, rests entirely upon the nature of the eye itself; and happily there are but few organs of the human frame which are either better understood, or more easy of apprehension.

The simplest view which we can take of the human eye is that of a ball or sphere, of about an inch in diameter, having a dark interior coating called the *choroid*, and admitting the light, whereby we see, by means of a small circular orifice—the well-known *pupil*. To this little sphere a ball and socket motion is given by the agency of several muscles, whose respective extremities are attached to the unseen part of the ocular convexity, and to the concavity of the socket. A circular tensile plane, named from its variety of colors the *iris*, divides the eye into two unequal compartments, and enables us to expand and contract the pupil according to the light. The aqueous and vitrious humors fill these compartments and serve to keep the ball itself distended; and the *crystalline* lens, which is situate immediately within the pupil, and amid the vitrious humor, has for its object that of the ordinary convex lenses of art, the concentration of those cones of light which proceed from every point of outward objects upon the retina, or nervous sensorium, which lines the back of the eye.

From this brief word-sketch of his eye—it is little more we confess, than a mere word diagram—let the reader now pass, and take an attentive look at the perspective figure we have drawn of two eyes and a solid. A part of a cone is here represented as the object towards which the pictured eyes are gazing.

Let us see, in the first place, what are the respective pictures which that object would imprint on the retinæ of these eyes. In the diagram, we have not attempted to do more than indicate their position by points; but the pictures themselves will evidently be the exact counterparts of those which we have represented as crossing the solid in broken lines, and in planes respectively perpendicular to the axial lines of the eyes. The retinal pictures, no doubt, will differ from them in size, and also in a certain hollowness corresponding to the magnitude and sphericity of the eyes; but these differences again, may be disregarded here, for they will in no wise affect the proof which, by this single diagram we seek to give our single vision with two eyes.

These broken-line pictures exhibit very distinctly the nature of that dissimilarity which always accompanies our ordinary vision of solid objects and of varying distances, and which forms the basis of stereoscopic vision. From this point, therefore, the proof of single vision will be the same both for the case of actual solidities, and for that of double dissimilar pictures of such solidities; for it is well known that instrumentally and otherwise, we can readily super-impose the images of these pictures. Let us now, in the second place, note the positions of the transferred pictures, that is, of the dissimilar pictures which lie on the retinæ. The points and the directions of the radiant lines will show that these positions are not symmetrical, and hence that the old doctrine of nervous decussation is unequal to the solution of binocular vision. What then remains to solve the common every-day mystery? If the power of the imagination be cited to the difficulty, few men of judgment, we believe, would be found to yield to it the strange prerogative. And the well-known indistinctness incident to the vision of any considerable space would come in to mar such a conclusion of imaginative power. But there is no need of such a wild hypothesis, for the eyes in pair have other and material means of determining distance, and therewith of securing the utmost distinctness at the very same moment; and these means consist in their admirable economy for speed, accuracy, extent and ease of motion. Who does not or may not perceive, every waking minute of his existence, that his eyes are in almost perpetual motion, and not only the balls of his eyes, but the lenses and pupils likewise, independently of the balls? Of these motions, moreover, the pupillary contractions and expansions are only necessary, as we have already mentioned, in order to regulate the amount of light which enters the eye; and the crystalline lens, with movements even more refined, enables us to meet the varying distances of outward objects, by invariably condensing their rays upon the retina—the pictorial seat of innumerable foci, and itself the netlike expansion of the optic nerve. From this latter fact it is that philosophers have jumped to the conclusion that distinctness of vision is simply dependent upon equality of distance from the ocular centres; and German physicists have improved upon it, by affirming that single vision of whole lines and surfaces is the ready consequence of their position upon the superfices of a binocular sphere, which passes through the two ocular centres and the successive parts of external scenery. But is it not also an incontestable fact that we can never see more than a very small space, almost a point, of any object distinctly at one time? And, if so, are not these theories too manifestly defective? The truth is, the retina of the eye is incapable, by reason of failing sensibility, of imparting distinct vision for any part of its pictures excepting that which lies upon the *foramen*, or portion of it diametrically opposite to the pupil. No theory of single vision can therefore stand for a single instant, unless in conformity with this fact; and we are compelled to look to the motions of the eyeballs themselves as the primary source of single vision with two eyes.

By these motions it is, in fact, that our pair of eyes can and do, every moment, converge their axes of vision upon single parts of any object of view, and glean the most perfect distinctness of both its character and position. And this they accordingly do, with the most perfect unison, upon all parts of the object, behind and before, above, beside, and below, for which the mind wills to have such distinct information; and, in so doing for only a very few points of any object or landscape they will necessarily fix the general shape and dimensions to the mental view. Nor does the full demonstration stop here. Let another significant fact of occular optics be added, viz.—that the impressions of the retina are not, as might be naturally supposed, instantly evanescent with every change of the eyes' direction; that these impressions, on the other hand, are retained for an appreciable period of time; and we see at once how, when the eyes do make the change of direction upon successive points of the field of view, the idea of distance and depth is gained with such unerring accuracy as we actually experience. And hence, to gather these remarks into one further observation, we conclude that the true stereoscopic effect, both in nature and art, is due to the successive convergencies of the optic axes alone, and that the distance between our eyes is for each individual the true base of his measurement.

Such and so few are the principles of that theory of binocular vision which is not one of the least, or least important, of the fruits which have resulted from the invention of the stereoscope; and we conclude the subject with the hope that it too may, ere long, be as widely known and appreciated as are the many striking effects of the instrument itself, which now occupies so large a share of public estimation, and promises to amuse and educate the people.

One word more regarding the common stereoscope and the recent differences of opinion which have been so fully expressed in the columns of the "Photographic Notes," regarding the proper distancing of cameras to secure stereoscopic pictures. Two rules have been proposed to guide the photographer in this matter, and he, singularly enough, restricts himself to neither. One of these rules directs that the cameras be invariably placed at eye-distance apart, and the other at such a distance as to form with the object a triangle similar to that which the eyes, in using a stereoscope, form with the combined pictures; and it is obviously founded upon the principle that the vision of pictures cannot be disjoined from the real distance of the canvas or other plane material upon which they are depicted. So far, however, is this from being a true principal of Art, that the very opposite is the universally admitted aim of all high Art whatever. And if, as Mr. Ruskin and good sense affirm, the truest painting simply consists in truth-telling, how much more should the attainment of truth and reality be the grand aim of an instrument which professes to enchance our picture vision by an appearance of depth, distance, and relief beyond every effect of shading, circumstance, and ariel perspective. No one denies that the true consequence of this rule is to limit the stereoscope to the vision of models of every object and view, excepting those whose photographic pictures are equal to their own superficial dimensions. This were to make it a very *toy* indeed. But who that has seen its best effects will venture to uphold the term? Is it not, on the other hand, certain that some of the very best stereoscopic transparencies have been taken by cameras at eye-distance apart from each other? And is it not well known that, though the practice of taking pictures at every distance, and quite abnormally, is common, yet these are but tricks of a new art to increase the apparent relief, while they utterly destroy the appearance of reality. To us, indeed, the fact that eye-distance is the only proper distance of cameras when set for taking prospects, appears so very obvious that we can only wonder how the grave error has held so long. For it is only with these pictures, we are firmly convinced, that the imagination has any chance of influencing the judgment toward the belief of reality, and the stereoscope of proving a valuable ally to highest Art and design.

L.

From La Lumiere.

METHOD FOR PRESERVING THE SENSITIVENESS

Of Collodions of every nature, in the dry state, and employing the same, at any indefinite period.

Translated from the French of M. Montreuil.

BY W. GRIGG, ESQ.

Sir :—I noticed an article in the last number of your journal by Mr. Dupuis in reference to the preservation of dry collodion by means of dextrine, and I do not for a moment doubt that Mr. Dupuis has met with success in his experiments.

It is, however, my conviction that this preservation of sensitiveness should in no way be attributed to the solution of dextrine, but *simply* and *solely* to the *washing*, which precedes the coating of the glasses with this chemical. My reason for this observation is, that I have heretofore put this dextrine process to experiment, and can tell Mr. Dupuis from my knowledge of cause and effect, that if he neglects to wash his glasses before coating with dextrine, he will only preserve them so long as this substance is fresh and moist; while on the other hand, by carefully washing, he will be able to preserve them in an indefinite manner. I cannot too often repeat, however, that the coating of syrup is, in every case useless, and very often detrimental. In a former letter you were pleased to insert in your Journal, I advanced, in a *very affirmative manner, that any collodion acting well in the moist state, may, if first carefully washed, be kept sensitive dry, for an indefinite period of time.* As I do not wish your readers to suppose for a moment, that I have not made sufficient trial of the process before this communication—a process which I dare not attribute to myself, convinced as I am that it is neither unused or unknown—I take the liberty of addressing you a second letter in relation to further applications thereof, and which, be it understood, have only tended to confirm me in my conviction.

In my first letter, I spoke of an acid sensitive bath, and of the development of the picture, as to be accomplished only by means of gallic acid. To-day, however, I go farther.

I leave to choice whether the bath of silver be neutral, the development by gallic or pyrogallic acid, or the fixing by hyposulphite or cyanide of potassium. I lately took six views at Troyes on glasses which had been long sensitized—I think about three weeks or a month—one with wet collodion and a neutral bath, the others with an old acid bath, which I had used last year for negative paper. I met with all possible success. Not a blemish, and not the least difference in vigor between the acid and neutral plates. As for developing, I prefer gallic acid, as it gives finer blacks.

Speaking of blacks, it is pretended that preserved collodion always give transparent skies. I have never experienced this, without exercising much effort to produce it. It is in fact evident that, in taking a landscape in which, near *white houses* we find *shady trees*, if the exposure be not prolonged until the foliage has had time to *develope*, and the *lights* of the houses have passed to the transparent red tones, the characteristic indication of *too long* an exposure, our negative will be little worth reproduction. In this case, which often occurs, it is certain we are obliged to retouch, to render the sky an opaque black. Can any one however, seriously say, that the same is not the case with wet collodion as with the dry, whether with or without the coating of syrup? Do we not know that a very black sky negative if not retouched, gives nought but a rough and unartistic positive?

Far be it from me to disparage all the known dry collodion processes now in use; as you may well imagine I can have no interest in so doing, but I simply and frankly state that I am convinced, that if my method which is really the simplest of the simple, be tried but once, artists will no longer persist in the use of syrup collodions. Mayhap I have badly explained, and again it may not have been rightly comprehended; in either case I give it again, fortified by two months longer experiment, and, I am bold to say, with success.

Any collodion acting well in the humid state—acid silver bath thus composed :

Distilled water	100	grammes.
Azotate	8 to 15	"
Acetic acid	id.	id.

If desired, a few drops of azotic acid may then be added. Do you prefer the neutral bath? use the same bath you employ for wet collodion.

As for developing, gallic or pyrogallic acid may be used. As I have before observed I prefer the gallic. My modus operandi is as follows: in a rather large glass bottle of large orifice, I dissolve cold, to saturation in an alkali, all the gallic acid capable of solution (this solution keeps for an indefinite period). When I have a proof to develope (my proofs are generally 27x35) I pour distilled water into a horizontal dish to the height of about ⅕ of an inch, into this I put, at a rough estimate, from two to three spoonfulls of my gallic acid solution, a few drops of acetic acid, and a few drops of nitrate of silver. I then immerse my glass, collodion side up as in sensitizing, and allow the operation to progress. If the exposure has been sufficient and the bath strong enough, the proof will be developed in all its details in a quarter of an hour, sometimes less sometimes more, and we have only to add a little nitrate of silver, if the tone be not sufficiently vigorous—in a word, the course is precisely similar as that for negative paper. If you prefer pyrogallic acid, your proof will develop faster, but less surely. Take 300 grammes of water, 1 gram. pyrogallic acid, 15 or 20 grams. acetic acid, with the addition of a very minute amount of nitrate of silver when all the details have made their appearance.

As to the exposure, it varies with me from three to seven minutes, according to the intensity of the light and the focus of the object-glass. I use a simple Lerebour's glass of about 17½ inch focus, another of 27½.

I forgot to mention that I now only wash my glasses for about a minute, until all greasy appearance has vanished, on removal from the water. They must be washed, however, under a stream and not in a dish; the latter mode is not satisfactory, and is sometimes dangerous in that the collodion, at this juncture, has not a firm adherence, not being dried, and may therefore sometimes be loosened.

It is my intention to visit Paris this winter and, buy the negatives of every sort and size obtained on dry collodions of divers natures, which I shall bring you, and I hope to make under your supervision some of the most conclusive experiments. I shall moreover be happy if any subscriber of *La Lumiere*, who may happen to pass in the neighborhood of Tonnerre, will give me a short call, he shall carry back with him a number of negatives, from his own hand, of a country possessing, artistically speaking, the most picturesque sites.

I now more than ever insist that if there be no swerving by any serious blunder from the manipulations I have laid down, success is the certain consequence—and that uniformly. I am ready to prove what I advance, to any person who may furnish the occasion.

For the Photographic and Fine Art Journal.

GIVE US LIGHT.

In Photography, do we not realize an exception to the proverb, that "in the multitude of counsellors there is safety." Where so many works are published varying so much in their formulas, what is the seeker after truth to do? It is conceded on all hands, that in the printing process the strength of the salting solution should bear a certain proportion to the strength of the nitrate bath. Now, what is that proportion? I have compared some of the published processes, and find them to differ immensely. All cannot be right. Will some practised hand who really understands the subject, favor your readers as to what the proper proportions should be based on, floating the paper on both solutions for five minutes? I give you extracts from published processes, whereby you will see the importance of having this matter well understood, if we hope to produce good positive pictures on paper. I have reduced them to the number of grains in 1 oz. of water.

Formulas.

Prof. Hardwich,	Chloride ammo.	20 grs.	Nitrate silver	40 grs.
Mr. Davie,	" "	1 "	" "	45 "
German,	" "	40 "	" "	60 "
Waldack & Neff,	" "	15 "	" "	60 "
Delamotte,	" "	30 "	" "	60 "
Mr. Seely,	" "	30 "	" "	60 "
Mr. Burgess,	" "	30 "	" "	100 "

I understand that the Editor of the *Photographic and Fine Art Journal*, uses 180 grains chloride ammonia to 1 gallon of water, with a 40 grain silver bath, which would be about 1½ grains to 1 oz. of water.

It is possible that less salting is requisite for the *ammonia nitrate* bath than for a plain solution, but surely not enough to account for the wide differences existing in the above formulas.

AMATEUR.

Remarks by the Editor.—We do not think any rule will hold good under all circumstances. There is *not one* formula that can be worked successfully in all cases. Much depends upon the purity of the chemicals, and a great deal on the make, quality, and thickness of the paper. Some men recommend double the quantity of nitrate of silver to the ounce, than any formula here given. The salting solution for thin paper must be much weaker—with the same strength of nitrate solution—than for thick papers. The only difficulty we find in printing, is only in the want of skill in our printer. We can, with the same formulas—no matter whose—always obtain good results, but we have not yet been able to instill all those little niceties of manipulation into others, that we observe ourselves. Our correspondent states the strength we generally use exactly; but we have produced precisely the same results with the solution reduced one-third below that point, and in some cases, where we have used negative paper, one-half, *i.e.* 90 grains to the gallon, the ammonio-nitrate solution remaining the same. We have also used a solution of ammonia nitrate as low as 1 oz. to 20 ozs., with equally good results. It is our opinion that photographers waste a great deal of silver by over-dosing. Every photographer can determine this fact for himself by experiment. The general rule, however, that the strength of the salting solution must be reduced in proportion to that of the silvering solution, will be found correct in most cases. The variations being consequent upon the thickness and solidity of the paper.

MISCELLANEOUS PROCESSES AND RECIPES.*

BY D. D. T. DAVIE.

VICTORIA PHOTOGRAPHS.

This style of photograph is exceedingly delicate and pleasing in effect. It cannot help but please, especially those who are fond of new things. The following brief directions are all that is necessary upon this subject. Take the ordinary negative photograph, and with a small brush, cover the entire groundwork of the plate with black paint, such as is used by the ambrotypists, or any other; yet blacking will answer as well, providing the ground is rendered opaque. The outlines of the figure must be traced with great care, for if once lost, its recovery is very difficult. This style of picture is more especially adapted to ladies and children, as it is only designed to show the head and neck to the shoulders. I have two pictures of this kind hanging in my gallery; the one of a little girl four years old, and the other of a lady with the neck undressed and blended at the point of the shoulders with the white ground work, which have won more admiration than any other two pictures that ever hung in my place. It will be understood that the black paint on the ground work protects that portion of the positive paper from the light, hence it is not changed or darkened. The picture is printed the same as any photograph, excepting the figure must be covered to the point at which it is to terminate, and this covering must be kept in constant motion up and down during the time of printing, in order to blend the neck with the white groundwork. The effect is most pleasing when all drapery is excluded, yet some may prefer showing a small portion of the dress, which if shown is more delicate and graceful; if but shown indistinctly, the shadows may be left quite distinct, but the band of the dress crossing the neck and high lights, should be but indistinctly visible. This style of picture is best adapted to subjects with brunette complexions.

The positive paper for Victoria Photographs, must be prepared with care, inasmuch as nearly the entire surface finishes white, upon which spots would look badly.

RE-TOUCHING NEGATIVES.

In photographs, the sky is not usually very truthfully represented. It is almost always made too dark when representing a thunder tempest, when the landscape or whatever may be taken, betrays a shining sun. This unnatural effect may be overcome in the following manner:—Make a thick varnish or paste of bitumen of judea dissolved in spirits of turpentine, and with a small brush spread on one coat of this paste over the entire portion representing the sky. If it still prints too dark give it another coat; and if a white is desired, the negative must be made entirely opaque.

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* Copyright secured.

INDIAN CHIEF.

Beautiful clouds and sunset effects may be introduced into the photographic landscape, and at the expense of very little time, with the small brush and bitumen paste. The tempestuous storm, the dark and dismal cloud, with the vivid flash of lightning dancing upon its thundering bosom, the rainbow and other scenes of grandeur and beauty, may be represented in the photographic drawings.

RE-TOUCHING POSITIVES.

This is best accomplished with india ink and some other lighter color to modify it; the black spots may be re-touched to their proper transparency or opacity. Shadows if too deep or too feeble may be corrected; defects in the eye also, if shaded too deep, may be corrected by a careful hand guided by good judgment. Should the spectrum of the eye be different or misplaced by some unnatural reflection, or should it be too large or too small, this may be easily corrected in the negative by the pencil, supplied with ink of a proper color.

PRACTICAL HINTS TO THE OPERATOR.

The first step in manipulating, is to clean your glass well. Old silk handkerchiefs are good for cleaning up the glass; never perform this part in so great a hurry as to slight it. Keep your sensitive bath covered and entirely excluded from light, and away from hyposulphite of soda and all other slops. Never continue to make one picture after another when results are bad, but find the cause of your trouble and remedy it. If you wish feeble results, leave your plate too long in the sensitive bath. In developing too long, there is danger of streaking or clouding the plate. Let your negative remain in the hyposulphite until it is cleared up and no longer.

Wash with great care, otherwise your collodion may break and the picture be spoiled. Wash for a long time after the hypo., for if that salt is not all removed, as the plate dries it will form into small crystals which will eat holes through the collodion and destroy the negative.

Use none but pure gum arabic for negative varnish.

Print with care or you may scratch your negative.

Never allow your positive paper to be handled, except by the extreme corners.

When your positive paper is cut into sheets, mark one side at the corner for the back of the sheet.

In weighing and measuring for compounding, if you lose tally throw away and begin anew.

It is well to immerse the positive proof in water, before placing it in the fixing bath.

PREPARATION OF CHLORIDE OF GOLD FOR PHOTOGRAPHIC PURPOSES.

To 1 pwt. of pure gold, add—

Clear pure nitric acid	2½ drachms.
" " muriatic acid	5 "
" distilled water	5 "

Heat moderately over a spirit lamp until the gold is all dissolved. This must be done in a porcelain evaporating dish. When the gold is all dissolved, put into another evaporating dish (a larger size), a quantity of sulphuric acid and place it over a spirit lamp or over a sand bath, and immediately before the sulphuric acid is hot, place the evaporating dish containing the gold solution into the dish containing the sulphuric acid, and let it remain over a strong heat until the acid is all evaporated from the gold; then remove it from the hot bath, and cool quick as possible, stirring it continually until it is in dry crystals; then bottle it immediately and keep it entirely excluded from the atmosphere. This salt is very deliquescent and very soon becomes liquified, if exposed to the atmosphere.

REMOVING SILVER STAINS FROM THE HANDS.

When the hands are perfectly dry, apply a saturated solution of cyanide of potassium in water to the stained spots, and if the silver does not decompose or the stain disappear in 30 seconds, wash the cyanide from the hands, plunge them in a strong solution of salt and water for one or two minutes, then dry the hands and repeat the application of cyanide the same as at first, and when the stains are removed, wash the hands first in water and lastly in alcohol. Cyanide of potassium is a very poisonous subtance, and if allowed to come in contact with ruptures on the hands, oftentimes produces disastrous results.*

PRECIPITATION OF SILVER SOLUTIONS.

Muriatic acid will precipitate the chloride of silver; common salt will do the same. When the silver solution has been neutralized and effervescence ceases, the chloride falls to the bottom, and there is no more silver in the solution. Sulphuric acid precipitates the sulphuret of silver; both the chloride and sulphuret are soluble in cyanide of potassium, and may be used successfully for galvanizing purposes, or both may be reduced to a metallic state by heat in a crucible, mixed with carbonate of potash; or the chloride and sulphuret may be reduced to metallic silver by an electric current in the following manner:—Put the quantity of silver to be reduced in an earthen pitcher, pour on to it a quantity of water, and add two or three spoonfulls of sulphuric acid, and throw into it several pieces of zinc, or what is still better, Morse's Telegraph Zinc. Immediate action takes place, and in a longer or shorter time, the whole is reduced to a metallic state; this is readily determined by its turning black, and assuming a heavy sandy appearance. When this is well washed, it may be redissolved in nitric acid for nitrate, chloride, or oxide of silver, or it may be melted to a lump in a crucible.

OXIDE OF SILVER.

To any quantity of silver (coin or plate), add a sufficient quantity of nitric acid to dissolve it (over a gentle heat); when dissolved, add three times its bulk of distilled water, and precipitate with a saturated solution of potash in water, wash well with water, and dry.

NEW COLLODION DRY PROCESS.

Translated for the Photographic and Fine Art Journal, from the French of Edmond Robiquet, Esq., member of the French Institute: by ANGE MARCIERU ROSSI, Quarter-Master of the late British Legion.

Until recently, Photographers have been seeking for the manner of obtaining plates of sensitized collodion which will take impressions as well immediately after the bath of nitrate of silver as those which have been prepared many days, their surface being quite dry. The problem to be solved seems to me of great simplicity; and if the result so much desired has not yet been obtained in a satisfactory manner, it is because it has been supposed hitherto that the sensitised quality is derived from the presence of water.

Thus, a great deal of barren sensitives and experiments, resulting particularly from that fixed idea to obtain hygrometric surfaces.

When we view with the lens—and after a bath of nitrate of silver—the surface of a sensitized collodion, we perceive numberless globules of iodide of silver, separated from each other by vacuity, which may be perfectly estimated. In washing this plate with distilled water, and leaving it to dry spontaneously, the disposition of the precipitate will not be at all changed.

Now, if you lay it open to the action of light, the modification that it ought to undergo to produce a drawing by the means of reductive agents is accomplished very slowly, and often the time is unlimited.

This takes place because the agentine process brings forth a thin dust, of which all the minute particles are separated, and cover over distinctly the impression of the light, and hence considerable slowness is the result.

If by some artifice we might be enabled to unite all these separated elements, the mysterious effect of the light will not weary itself in partial, but will take place on a unique surface.

When the plates of sensitized collodion are exposed to the camera obscura, after the bath of nitrate of silver, of which they retain a great part, you only set up a continuity, on the impressionable surface of which every point among them is connected by a smooth surface of water, being, comparatively speaking, a varnish.

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* Mr. E. Anthony, 308 Broadway New York, sells an article (*Cyanogen Soap*) which cleanses the hands more readily, and has none of the bad effects of *cyanide of potassium.* It is only necessary to rub it on the nitrate spots gently, and wash off with good castile soap.

Also the plates of sensitized albumen should be considered a precipitate of iodide of silver, which is united together, not unequally, as it is for the collodion, but by a true varnished albumen, spontaneously dried ; and without any more trouble you can operate by the dry process with similar plates, only their preparation exhibits many difficulties, and the time they require to be impressed is very long.

Then, starting from this idea, the wet collodion is quicker than the dry collodion, not because it retains the water, but just because it shows a smooth and united surface, which can be impressed equally over all its parts. I thought it would be sufficient to resolve the problem by adding to the common iodide collodion a body able to correct the roughness and irregularities of the surfaces, and to unite the scattered particles of iodide of silver. The caoutchouc, the gutta-percha, the gum-lake, the balm of eotu, with benzoic acid, and many other similar bodies, gave me very satisfactory results ; but of all the methods I have tested, the following is the best for a clear and neat work :

1*st.* *Preparation of the Amber Varnish.*

	French weight.[*]	Eng. Troy weight.
Phosphorized yellow amber	40 gramms...	606 grains
Chloroform..............	150 "	....2260 "
Sulphuric ether..........	150 "	....2260 "

The amber is varied by lixivation in a proper vessel, and the liquid merely filtered through paper.

2*d.* *Preparation of Dry Collodion.*

	French weight.	Eng. Troy weight.
Sulphuric ether....	200 grammes	......3013 grains.
Alcohol...........	80 "	......1212 "
Gun cotton........	6 "	..... 91 "
Iodide of ammonium	4 "	..... 60 "
Amber varnish.....	25 "	..... 376 "

Mix all these substances in a bottle, shake it till the solution is complete, and keep it still during three or four hours, then decant and filter it through jeweller's cotton.

The only essential condition to obtain the desirable result in these two operations is to use pure products, chemically speaking. This collodion is spread over the panes of glass as usual, and they are sensitized in a bath composed as follows :

Distilled water....................	100 parts
Nitrate of silver..................	10 "
Acetic acid........................	10 "

The last must be in a crystallizable state. The plates are next washed with distilled water, and left in the dark to dry spontaneously.

Prepared in this way they might be kept many months before the exposition in the *camera obscura* without losing their sensitized quality ; but after the result of the action of light, you must not wait beyond an interval of twenty-four to forty-eight hours for the appearance of the drawing.

It would seem that the vibration of the molecules, impressed by the light to the particles of iodide of silver on which the drawing ought to be produced, are communicated little by little to the whole part, because the longer you wait for the reaction of the reductive substances, the more the drawing is darkened.

These impressed plates should be plunged quickly as possible into a bath containing two or three per cent. of nitrate of silver, let them dry four or five minutes, and then producing the drawing by the application of gallic acid, or the pyrogallic acid, by the usual methods.

The time of remaining is generally double that required by the wet collodion.

The dry collodion is advantageously employed, and better than the albumen for views of monuments or landscapes, and to obtain by application positive drawings on glass. For this last purpose, there are some precautions to be observed.

When the drawing is fixed as usual, dry it by an alcohol lamp, let it cool, then cover it with amber varnish. The proof is left in a dry place for three or four days. Now, with some jeweller's cotton remove gently the reduced silver dust that the amber varnish has not covered, apply a last coat of benzoic varnish, and let it dry in the open air.

This benzoic varnish is composed as follows :

Tender copal.......................	10 parts
Benzine............................	100 "

It is of great limpidity, the air does not darken it, and it gives to the proofs such transparency that even clever observers would take them for drawings on albumen.

The plates of dry collodion previously sensitized, can very well be used for likenesses, especially when you have a great number to do in a short time.

It will be sufficient to plunge these plates for a few minutes in a solution of nitrate of silver at five per cent., slightly acidulated by a few drops of nitric or acetic acid. After this bath the dry collodion acts as the wet collodion ; and there is no particular rule to be observed as regards the time of remaining, or the production of the drawing.

MAYALL'S NEW PHOTOGRAPHIC MATERIAL.

Mr. Mayall, the eminent photographer of Regent-Street London, has invented a new material for the reception of photographic images, which promises to become one of the most valuable contributions to the art that has been made for some time. The photographic paper used for taking likenesses has been hitherto of a nature to prevent the exhibition of delicacy in the gradations of tones. The paper likewise is too absorbent to allow of transparent color being laid upon it with accuracy and delicacy. The consequence has been that although photographs are in great demand, they have not as yet made any serious impression on the practice of first-rate minature painters. True it is that many skilful artist have used photographs as a ground work to be covered with color, and in many cases have produced admirable results, but as they were obliged mostly to use body color instead of transparent color the effect was really to cover and hide the true photograph instead of bringing it out. Ivory, on account of its granulated surface, was not adapted for the purpose of photography. Mr. Mayall has remedied these deficiencies by the production of a new material which has all the appearance of ivory, without the granular surface. Sulphate of barytes ground together with albumen, and then rolled out into slabs of the proper size and thickness for photographic pictures. The surface is then prepared like ivory. A negative image can be impressed upon this surface with a delicacy which has hitherto been unattainable. The most shadowy tones are rendered with perfect accuracy. The slightest fold of a ribband is shown with a fulness of perspective which could scarcely be produced by the manipulation of the most skilful artist. The work of the painter upon such a surface is comparatively easy. The consequence is that miniatures imprinted by photography upon this substance can be finished off by artists with extreme delicacy of execution. Several are on exhibition in Mr. Mayall's rooms which might have been taken for productions of Ross or Thorburn, so great was the work. The truth which photography alone can give is thus united with the artistic skill of the painter, and the result is what might have been expected. Compared with the heavy prices demanded by first-rate minature artists, the charges for photographs taken by this process are merely nominal. Among the paintings already suspended in the rooms there are, "Two studies of the Blonde and the Brunette" of surprising brilliancy and delicacy, and "A Boy," with a landscape background of great breadth and exquisite finish. Other paintings in the rooms bear testimony to the great capabilities of the new material. Photography has never trod so closely on the foot-steps of the painter's art as in the pictures on Mr. Mayall's new patent material.

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[*] Here I give the French and English weights, to avoid mistakes in reducing from the French weight.

From the Illustrated London News.

THE PHOTOGRAPHIC EXHIBITION.

We are disappointed in the Fourth Exhibition of the Photographic Society. Whether the great Sun, to whom Photograpers bow down, has behaved unkindly to his worshipers during the past year, or whether the hot enthusiam of the professionals and amateurs has begun to cool, we are unable to decide, but certain it is that, looking at the evidence before us, this new art has not progressed in England one step since our visit to the Water-Color Gallery at this time last year. We miss, too, the names of many of the old exhibitors. What have Mr. Lake Price, Mr. Henry Leverett, or Mr. Hennah been doing that they cannot contribute a single picture? Even the venerable Knight, Sir W. Newton, who rejoice in pictures "out of focus," has not sent his portraits of trees; nor has Mr. Claudet added his usual colored stereoscopic pictures of fair ladies. To make amends, however, that Crimean hero, Mr. Fenton, covers the walls with large, bold, and well-chosen pictures from Scotland and the north of England; but we regret to say that, as photographs, we consider them to be far inferior to his pictures of "Bolten" and "Rievaulx Abbey," exhibited two years since—one of which we have engraved. It was suggested to us that his pictures this year look as if a thin sheet of gauze were laid over them, so faint is the general effect, and so wanting are they in that vigor which every good photograph from nature should possess. Of Mr. Fenton's contributions we like best his 102, 115; but we have not a word to say for such flat and unprofitable things as 156, 420, 306.

Mr. Henry White, too, usually a most careful and successful practitioner of the art, has this year failed in impressing us with any favorable sensation. His pictures are much less briliant than usual. Some of the subjects are too commonplace and ill chosen, such as No. 633; but we cannot pass by Nos. 319 and 647 without drawing attention to the foliage of the clematis, the honeysuckle, and rose, which is here better rendered than in any picture we have before noticed.

Mr. Philip Delamotte sends this year a series of beautiful little views of Oxford. One of the chief recommendation of Mr. Delamotte's works is that his points of view are always well selected. He seems to possess an educated eye that at once rejects those combinations which are so painful to men of taste, but which never give one moment's uneasinesss to those photographers who rejoice in the minute detail to be found in brick walls, or in the excellent portraits of individuals who are seen standing in the foreground in various attitudes much more natural than artistic, and who are always staring vigorously at the camera. Whenever Mr. Delamotte introduces figures it is with propriety, and as an aid to the general effect: but we notice that he very rarely has recourse to this assistance, and we can readily imagine that it is from the great difficulty he finds in getting people in easy attitudes. The moment a man is asked to stand still that he may be included in a picture he almost invariably assumes some ungainly and constrained position, and all ease seems to have forsaken him: directly he is told that he may move he becomes himself again. We recommend this curious fact to the notice of psychologists, and if they can tell photographers how to get over the difficulty they will do a great service. On one of the screens is a large frame containing some twenty or more stereoscopic views of the Colleges at Oxford, by Mr. Delamotte, which are undoubtedly the prettiest things of the kind ever done.

Mr. Thurston Thompson's copies of drawings by Raphael and Holbein are perhaps the most valuable reproductions ever effected by photography—no other art can give such exact copies as these are—to every intent they are equal to the originals; and when we see how beautiful Mr. Thompson has done his work—and there is nothing in photography more difficult—we do not wonder that he is afforded access to the Royal Collection, the Louvre, and the Oxford Museum. His copy of the large enamel by Leonard Limousin, in the Louvre, is very find. It is taken on several different negatives, and he has managed to print from them, and join them in such a way that a casual observer would imagine the whole was printed from one glass.

Mr. Llewlyn's pictures this year are not so good as usual. They have the same fault as Mr. Fenton's. They are not bright and sparkling as we are accustomed to see his landscapes. His best is a "Gipsy Encampment"—a pleasing photograph; but the truthful art tells us they are not real gipsies. He exhibits a little picture; "The Forest Scene" (582), by the oxymel process, which is a perfect gem.

Messrs. Bullock and Dolamore's large pictures are some of them very excellent; especially the "Views of Rydal Water" (237, 239, and 247); but then "Wells Cathedral" and "Glastonbury Abbey" are not up to the mark.

Mr. Bedford has sent but few contributions this year; but as usual, they are among the best in the room. There are qualities in his views 350, 356, 360, which we never saw surpassed. The wet, glassy look of the stones, the reality of the tumbling water, &c., are all exact transcripts of nature. Many of the photographers may take a hint from the very beautiful way in which Mr. Bedford always prints his pictures.

ON A NEW SYSTEM OF STEREOSCOPE.

Translated for the Photographic and Fine Art Journal. from the French of Mr. Faye, by Ange Merciero Rossi: Quarter-Master of the late British Legion.

Mr. Faye has presented to the Academy of Sciences a small apparatus, for the purpose of facilitating the stereoscopic vision.

This machine is merely a single sheet of paper, in which there are two holes of 4-1000 of a yard diameter, at about the same distance as the eyes of the spectator.

To use this stereoscope it is necessary to place it with one hand on the double drawing which you hold with the other hand: while looking steadily through the holes, gradually move the apparatus close to the eyes, and soon the two holes seem confounded in one; then the drawing in relievo appears between the two plain drawings.

The author is well aware that the sensation of the relievo can be obtained without any machine at all; but he thinks that the method he has indicated, and which can be prepared in a few moments, facilitates the stereoscopic vision, and can be employed in all cases, especially for drawings kept in albums, books, (of crystallography, natural history,) which you are unable to place under the common stereoscope. He used this method in his lectures, to familiarize notions that now are indispensable for scientific applications.

From the London Art Journal.

ISCHL: A NEW FIELD FOR ARTISTS.

This little place, which we have made our head-quarters for the purpose of exploring the beauties of the Salzkammergut, a district lying in the South of Austria, joining Tyrol, was, till lately, an insignificant market-town; and though still boasting of no fine public buildings, nor having the evil attractions of a gaming-table, like other baths of Germany, undoubtedly far surpasses them all in the charms lavished upon it by nature. The advantages it offers to the artist, and lover of what is beautiful, are such, that I purpose entering into somewhat lengthened details on the subject, hoping thereby to induce some artist to spend a summers' vacation here, as I regret so few of our English landscape-painters repair to a spot in every way desirable for them. My own attention was drawn to the Salzkammergut by Herr Kummer, the well-known artist of Dresden. From Vienna we came up to Linz by steamer, passing some grand scenes on the Danube. At Linz we took the tram-road to Lambach and Gmunden, stopping at the former a night, in order to enjoy a peep at the Traun Falls, about seven miles distant, more leisurely. The Traun, a stream bright and clear as crystal, dashes over rocks grand and picturesque in form, the white foam, wreathing above and about you, falls like showers of diamonds in the sunshine. The surrounding scenery harmonizes well; indeed, I consider these falls equal to Schaffhausen. The lake of Gmunden, or, as it is sometimes called, the Traunsee, is romantic in the extreme—particularly at the Ebensee end, where the Dachstein, with its glaciers, first comes into view. Mountains encircle the lake, but they are not all bare and barren, as in most lake districts, being generally clothed to the waters' edge with forests of fir, larch, beech and oak; bold masses of rock jutting forth, and contrasting well with the varied tints of the neighboring foliage: thus there is less sameness than is usually found in similar spots.

A steamer carries passengers from Gmunden to Ebensee; and though the idea of a steamboat on so lovely a lake may at first appear rather to jar with one's preconceived notions of the picturesque, and to be sadly out of place, yet I assure you we availed ourselves gladly of the accommodation it afforded, and were soon so thoroughly absorbed in the contemplation of the increasing grandeur of the scenery, as to be perfectly forgetful of our means of locomotion. When about half way across, the lake makes a sudden bend, and the character of the scene is entirely changed, that part near Gmunden being of a smiling, quiet kind of beauty, while at the upper end the rocks rise majestically from the water, their fine and *peculiar* outline cutting clearly against the sky—the magnificent Traunstein towering above them all, and casting its gigantic shadow over the bright green water,—for you must know the color and transparency of the Traun are shared by every lake throughout the Salzkammergut. Vehicles are at Ebensee in waiting to take people on to Ischl, along the Traun valley, in which fresh beauties present themselves at every turn; in truth, it would be difficult to find in a day's journey scenery to equal that I have endeavored to give a slight notion of. The accommodation at the hotels is good, particularly at the Kaiserin Elizabeth, kept by a civil, obliging person, Herr Bauer, who speaks English; but for any one who desires very economical quarters, there are several other hotels of less pretension. Apartments are numerous, and not dear, if you bargain, as they always demand about double what they intend taking. Capital fishing is to be had. The costume of the women is peculiar as regards the head dress, it consisting of a large black silk handkerchief bound round the head, and tied so as to bring all the ends hanging down behind. The peasantry are not handsome:—but to return to my subject. The excursions that can be taken from Ischl are numerous, and gentlemen who are not too fastidious about having luxuries for supper or dinner—as I fear many of my countrymen are—may generally be fairly accommodated for a few nights in the villages round, if, for purposes of study, so long an absence from head-quarters be desirable. A convenient mode of locomotion is to hire a carriage of the country, called an *Einspanner*, and it is not very expensive. We enjoyed our visit to the Vorder Gosausee extremely. The road that leads thither passes by one end of the Hallstadt Lake, then diverges, and you enter a narrow defile, down which rushes a lively torrent, forming, from the nature of its rocky bed, and the steepness of the descent, a succession of cascades.

Inviting subjects for the pencil present themselves throughout this gorge, as also in the Gosauthal, at its upper extremity, where you must leave your carriage, as a forest intervenes between it and the Vorder See: on emerging from the former, the lake suddenly bursts upon you with solemn grandeur, hemmed in as it is by lofty mountains and dazzling glaciers. A boat carries you across, and after a short walk you come to the Hinter See, yet more sublime in its severe beauty. The scene is one that baffles my poor powers of description. So profound a stillness reigns, that one cannot resist the feeling of awe that creeps over the mind, and at length renders the longing after life and sunshine unbearable. The reflections in the deep, dark water were perfect: the only creature I saw to disturb the repose of the scene was a chamois coming down to drink: he soon fled away on observing us.

The lake of Hallstadt is another of the sombre kind, the mountains being of great height: in fact, in the little village bearing the same name, the sun is not seen for months above their summits. From what I have said, I fear you may fancy the scenery is all of a grand, but savage character—such as Salvator Rosa revelled in; but it is not the case, as all who have visited the lovely lake of Wolfgang will testify, than which, nothing can possibly be more picturesque or beautiful.

Less distant excursions offer equally enchanting objects, the only difficulty for the artist being what to commence with; indeed, the sketchbook should never be left at home, as on emerging from the dense woods most exquisite views over hill and valley present themselves, in spots where nothing of the kind could have been acticipated. The trees are ever luxuriant. For the botanist, also, Salzkammergut has many charms, its stores being rich and varied; and to the seeker after health the exhilarating mountain air is invaluable. The simplicity of the daily routine of life is charming; everybody enjoys himself in a natural, unaffected manner. Breakfast and coffee we generally take in the open air, either at a nice little country inn up the Laufen valley, or at one of the many places set apart for such purposes, and which are always situated where a fine view lies stretched out before you.

Salzburg is easily reached from Ischl; the beauties of its situation are too well known to require any mention here. The drive from thence to Königsee, through the valley of Berchtesgaden, is so fine that no one can regret the time it occupies: and the Königsee itself well deserves its high sounding name. We were much favored by the weather when we visited it, the day being one of smiles and frowns—so we had opportunities of seeing the lake under many aspects. The mountains encircling the Königsee are grand in the extreme, and as the masses of cloud rolled majestically up, disclosing their fine outlines, they appeared to great advantage. Occasional gleams of sunshine shot athwart the lake as we rowed along, and served to make the gloom more perceptible: it was altogether a strange, melancholy scene. The boats used on this lake are most primitive, being formed only of a single tree hollowed out; they are in shape similar to a canoe, and highly picturesque.

My letter has really become so long that I fear your patience is exhausted, yet I feel how inadequately I have portrayed the delights of a summer's residence at Ischl; however, if I have excited your curiosity, so as to make you come and judge for yourself, my object is attained. Believe me when I say that during my long wanderings a lovelier district than the Salzkammergut, with its magnificent mountains, waterfalls, glaciers, forests, sparkling rivers, and romantic lakes, it never has been my lot to see; indeed, I question if there be a country more rich in the glories of nature, and long, long will the remembrance of the happy hours spent watching the ever-varying effects of evening from our cottage at Ischl, be treasured by me.

ETHERS S. PERCY.

From the Liverpool Photographic Journal.

PROCESSES.

The *Revue Photographique* acquaints us with a process described by Capt. Navez, of Anvers, which we condense for our readers. This mode offers the following advantages: 1st. It furnishes proofs which in all probability will be permanent. 2d. Minuteness of detail, which albuminized paper cannot equal. 3d. The general tone of the proof may be regulated by the operator according to the nature of the subject. 4th. A positive proof may be obtained in a quarter of an hour. 5th. After having been occupied with obtaining negatives during the day, the operator can secure proofs of the same in the evening. Cover a plate of glass with very thin collodion containing iodide of potassium, and only just so much alcohol as will allow the cotton to dissolve; sensitize in a weak nitrate of silver bath, (4 or 5 per cent.) and in which a small quantity of iodide of silver is dissolved. Place your prepared plate in a frame having a rabet to contain it; apply over it the negative, previously protected with slips of strong paper at the top and bottom, to prevent contact with the moist surface of the collodion film; fix the frame vertically in front of a powerful lamp furnished with a parabolic reflector, and surrounded on all sides with a screen of black cardboard, so as to exclude all diffused light. The exposure should be from two to six minutes; finish in the ordinary manner with pyrogallic acid, and clean with a saturated solution of hyposulphite of soda. Dry the proof thoroughly, after careful washing, and place it in a levelling stand; then pour upon the collodion face, white plaster finely powdered, and mixed with gum water. Hasten the drying with a spirit lamp, if hurried, but not with much heat. The proof thus obtained, when seen from the glass side, appears with most finished details upon a brilliant white ground; or you may vary the effect by introducing into the mixture such colors as may seem appropriate, being careful to choose them of very light tint. With these precautions the pictures dispense altogether with passe partouts, as you may surround them with a border of gold, or any other ornament, and they will therefore prove particularly well adapted for portraits.]

From the Liverpool Photographic Journal.

ON THE USE
Of Acetate of Soda in Iodizing, as an Accelerator.

BY W. D. PARR.

In Mr. Hardwich's excellent *Manual of Photographic Chemistry*, the properties of acetate of silver are explained, with its formation from the mutual decomposition of acetate of soda, and nitrate of silver; and the addition of a minute portion to the nitrate bath for collodion negatives is advised, for the purpose of substituting acetic acid in place of the nitric acid liberated, where collodion is used containing any free iodine; acetic acid having a much less retarding effect than nitric acid, during the exposure to light.

After experimenting with the nitrate bath in the manner indicated in the *Manual*, I was induced to think that a more extensive application of acetate of silver in negative processes than could be used through the medium of the silver bath, (the salt being so sparingly soluble), might be attended with great advantage as an accelerator; accordingly, I applied a solution of acetate of soda to one-half of a piece of Canson's paper, after it had been iodized and sensitized in the usual way, but not washed. This paper was exposed in the camera for ten minutes—a quarter inch diaphragm being used—and developed with gallic acid. There was scarcely any impression on the side to which the acetate was not applied, whilst the other, equally clear, was fully brought out. This method of using the acetate after sensitizing, is however inconvenient, and I therefore tried the effect of adding it to the iodizing bath, by which means any required quantity of the resulting acetate of silver may be introduced into the sensitive surface.

I will now describe the process followed in taking the three negatives exhibited:—

Immerse Canson's negative paper for three minutes in a bath of—

Water	10 ozs.
Iodide of potassium	75 grs.
Bromide of potassium	25 "
Soda in crystals previously neutralized with acetic acid	30 "

Free iodine sufficient to give a "strong color."

Hang up to dry. When requiring to sensitize two pieces for the dark slide, the glasses (of which I use four) are removed from the slide; two of them are levelled, and about 2 drachms of a 30-grain solution of nitrate of silver (with 1 drachm of acetic acid to the ounce) distributed uniformly over each. The iodized paper is now to be floated thereon for three or four minutes, or until the dark purple tint of the paper is completely gone, when the superfluous nitrate is to be drained away and preserved for developing, and the margin of the glasses blotted off. They are now to be placed in the slide, with a second glass at the back of each; then a thin card board, with sufficient loose paper between the card board to keep all tight when closed. This process occupies about ten minutes, and the paper remains good and damp for five hours.

The time of exposure was from 5 to 13 minutes, according to light,—the former sufficing in full sunshine, an half-inch diaphragm and lens of 14 inches focal length being used.

The image is developed with gallic acid, the drainings from the sensitizing process being added at the last, if necessary. The remaining part of the process is the same as that usually adopted, but the waxing is made, instead of the first, the last operation after the removal of all the size from the paper. I had hoped to have made a favorable report of its application to collodion; the first trial with 4 grains of the dried acetate of soda and 4 grains of iodide of cadmium to the ounce of collodion, gave a strong impression in about one-ninth part of the time of ordinary collodion, and quite free from any symptoms of fogging; by the next day, however, the collodion had become so deteriorated that universal decomposition took place on applying the developer (pyrogallic acid), even when the plate had not been submitted to light. I fancy that it is the æther that is injuriously affected by the acetate, as the iodized papers prepared as above appear, if anything, to improve by keeping.

Having failed with collodion, I was desirous of trying the effect of a still larger dose in the paper process. The small negative exhibited is the result obtained by the addition of 7 grains of the neutralized soda to one ounce of the former bath, making it 10 grains in all. This paper was prepared the same as before in other respects, exposed 10 minutes with a ¼-inch diaphragm, and developed 6 hours after by floating it on gallic acid on the slide glass. This is quite as well defined as the others and certainly as clean.

In conclusion, I would remark that the papers will not keep many hours after being sensitized, and that the only advantages to be expected are a diminution of the times of exposure and development, and an extra density in the negative.

IODIDE OF STARCH THE GREATEST REACTIVE TO DETECT SILVER.

Translated for the Photographic and Fine Art Journal, from the Italian of Mr. F. Pisani, by Ange Mercieru Rossi: Quarter-Master of the late British Legion.

Mr. Deville has demonstrated the affinity of silver and iodine, because under the action of the hydriodic acid the chloride of silver itself is decomposed.

But what is more striking, is that the iodide of starch, mixed with chloride of silver, deposits very readily with this latter, its iodine being transformed into iodide. In the filtered liquid you find chlorine, and the blue tint—proper to the iodide of starch—has disappeared.

The iodide of starch is the most sensible reactive to detect silver, when, of course, it contains no mercury.

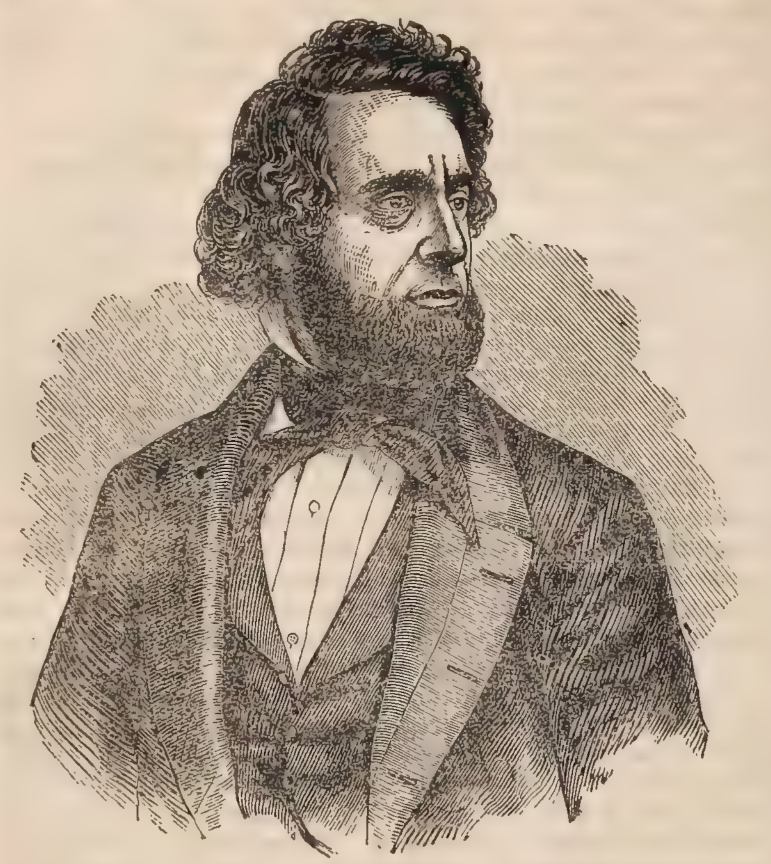
So in 100 cent. of liquid containing $\frac{1}{100}$ of a milligramme of silver, it is sufficient to add ½ centimetre cube of iodide of starch to obtain an immediate change of color, and with the same quantity you may dye very sensibly 100 of pure water.

In a less voluminous liquid, with the iodide of starch, you may detect even to the $\frac{2}{100}$ of a milligramme of silver. You secure immediately the presence of silver as in the lead used in trade, by dissolving it in azotic acid, leaving the liquid cool, and pouring upon it a little iodide of starch: only you must previously take the precaution to saturate the excess of acid with carbonate of lime, to prevent it from having any action on the iodine. A similar quantity of azotate of lead, free from silver, takes a sensible tenuity, with the addition of a few drops of the same reactive.

For these experiments I have used the soluble iodide of starch, prepared according to Dr. Quesneville's process.

From the American Druggists' Circular

JAMES R. CHILTON, M.D., ANALYTICAL CHEMIST.



It would be difficult to over-estimate the importance of Chemistry, not only in the world of science, but in that manifold relationship to social life it exhibits in its intimate association with human comforts, human luxuries, and even human necessities. The bread we daily eat presents us with the triumphant application of some of its commonest principles. In two much of what we drink, its noble purposes are perverted, and its novel truths employed to effect, by art, the simulation of nature. The air we breathe is made by it to adminster to our wants, as well as the water in which we lave. It regulates our diet; it enters into the composition of the apparel we wear, and the buildings we inhabit; it performs for us the most servile operation of every-day life: yet makes its presence felt in the most solemn occasions known to us in medical jurisprudence; it assists us in the fluid we use to pen the most endearing terms of affection, and in the explosive means by which man gratifies his petty revenge, and ambition makes its inglorious efforts to accomplish the fall of nations

Without going back to the age of ignorance and doubt; without wasting time in the first rude efforts of Chemistry to awaken in the normal mind a sense of its capacity to shatter the ancient world of science, and re-construct it upon a new and solid basis—we have only to look about us at the present moment, and ask, in what development of physical good or evil is it not an active constituent? in what great movement, in the shape of physical progress has it not been an intelligent pioneer, or a faithful auxiliary? It embraces within its field of association all other sciences; and is, in itself alone, a universe of life, of learning, of thought, of philosophy, pregnant with reposing truths, that only want the voice of time to spring into an animated existence.

What a sublime power, then, would that man wield who could have at command all the mighty and mysterious resources of Chemistry? And how truly to be envied must he be in the eye of wisdom, who, grasping at that gigantic authority, has a right to feel that there are few who can equal, and perhaps none who can thoroughly surpass him in his claim to it! In this honorable category we think we may safely place the subject of this brief biography. Europe has upon his shining list the names of Lavoisier, Berzelius, Liebig, etc.; but upon our own, glittering among the most effulgent, we may point to the name of Dr. JAMES R. CHILTON, with something of State pride, as well as of national dignity. Dr. Chilton was born in this city, on the 9th of November, 1808, and consequently, is still in the prime of life and of mental vigor. Under the eye of his father, the Late George Chilton, he was educated with a care and thoroughness that could not but develope his peculiar abilities, which displayed his parent's keen appreciation of his natural gifts, and the public spirit that would permit no selfish obstacle to stand in the way of their devotion to humanity. In the various departments of Natural Philosophy, our subject had made more than ordinary progress at a very early age; but he directed, from choice and a natural inclination, his researches more particularly to Anatical Chemistry. In this branch of knowledge his father, who died in 1836, had acquired a proud, reputation, and the son seemed evidently destined to build upon it a lofty monument of distinction. Fortunately, his mental organization was of the kind best adapted to the pursuit of this important branch of his favorite science; and hence he soon brought to bear upon it a vast amount of relative and practical facts, gleaned from the labors of others, as well as of important results obtained by an almost unexampled exercise, on his own part, of patient and unwaried industry.

In 1839, Dr. Chilton, in his earnest and constantly increasing love of science, applied himself to the study of Medicine. In 1834, he graduated, and with the highest encomiums of the presiding faculty. As a medical practioner he is deservedly respected for the talent and faculty of observation that render him successful. He combines, too, the essential qualities so much needed for usefulness in that profession—a clear head and a kind heart. For a time, he pursued that avocation with the natural ardor that characterizes him in all his undertakings; but the demands of his still more facinating branch of study, seduced him from that devotion to the practice of medicine which would have won for him, with his high order of attainment, a place in the front rank of the profession. He is still, however, in all those cases in which important chemical analyses become imperative, extensively consulted by our most eminent physicians.

The world has a right to look to Dr. Chilton for a work illustrating his experience in the various toxicological cases that have been brought under his immediate attention, or in which it has been his duty to determine valuable and imposing facts. Such a work, we understand, has been in preparation by him for some time, and is looked for with the deepest interest by the scientific world. The unusual practice that his wide-spread reputation has secured for him in analysis, has, so far, no doubt, rendered it impracticable for him to complete his design to gratify the public mind; but we may hope that he will sieze the earliest opportunity to produce what will unquestionably become the standard reference of the age upon the subject which it will so elaboraetly and satisfactorily treat.

It would be out of place here, to avert at length to the social character and position of Dr. Chilton. Both, however, it will do to say, are of the happiest character. With his rare mental endowments, his benevolent and kindly spirit, his affectionate motive, his complete exemption from that sense of envy which disfigures some other great minds, he could not well be anything but most fortunate in his disposition and circumstances. The love of science in him is a passion, that has well rewarded him, in every sense, for his arduous endeavors and his unceasing devotion. May he find a host of imitators!

As the life of the statesman illustrates the history of his country and his times, so the biogragraphy of the man of science developes the history and progress of science itself. The designs of eminent men are important, not only to their contemporaries as facts, but to future generations as examples left upon the records of time for the general conduct and encouragement, for edification and imitation. The lives of celebrities, therefore, are full of instruction. Furnished by every sphere of human action, they notably illustrate the power of man to elevate himself above surrounding influences, and make his own route, by his own energy, to popular distinction. Into what better society, therefore, could we introduce our children and our deciples, than into that of such luminous examples? Hence, we have no doubt that the biographies, of which it is our design to make a leading feature in this journal, will prove abundantly acceptable both to the old and young of our profession. We shall not confine ourselves exclusively to those of scientific men, but give in future numbers, the history of some of the great Drug Houses of this country, as well as supply the lives of their founders and present leaders —subjects that, we conceive, will prove highly interesting and instructive. We bespeak for this enterprise the genial cooperation of the profession throughout the Union. Dr. Chilton has long been known among our photographic artists, not only, as the pioneer in photographic chemistry, but as the most skilful in the profession.

From the Revue Photographique.

PHOTOGRAPHY FROM THE IODIDE OF LEAD.

BY M. ROUSSIN.

Pharmacier aidè Major to the Military Hospital de Teniet al Hand, Algeria.

None of the chemical treatise mention the action of light upon the salts of lead. All the chemists who, from time to time, have had occasion to make or collect this material would, no doubt, be surprised to learn that it is affected by light in a manner as clear, distinct, and as quick as the salts of silver.

It is but a short time ago that I discovered this curious reaction; the time, means, and material (for I was attached to a far distant out-post for sixteen months) have prevented me from rendering this communication more complete and more worthy of interest.

If we precipitate a neutral salt of lead, such as the acetic or the nitrate, by means of a soluble iodide, it forms the well-known yellow precipitate the iodide of lead. Suppose the precipitate to be perfectly pure, let us observe what effect the light will have upon it. If the precipitate be moist, resting in the liquid at the bottom of the glass, no alteration of tint or perceptible change takes place on exposure to light, neither when dry is there any evidence of the action of the luminous rays; but when starch is introduced, or any matter in the slightest degree sensible to the least trace of iodine, there can be no longer any doubt as to the action of light. It will be seen then in fact that if some drops of starch water are let fall upon iodide of lead that has been some time dissolved, the mass assumes a slightly green tinge fully characterized. This tint is, as we say, a combination of two colors, yellow and blue. In the present case the yellow is produced by the iodide of lead undecomposed, whilst the blue proceeds from the iodide of starch.

After having dissolved the acetate of lead in water strongly impregnated with starch a certain quantity was thrown down by the iodide of potassium, in a chamber lighted with a wax candle, and the precipitate preserved at the bottom of the vessel in perfect darkness, had not changed its hue at the end of two days though frequently agitated. The glass, for the sake of experiment, was then suddenly exposed to the sun's rays, when the action was visible literally in less than a second; all the surface that the light had struck upon assumed a green tint, which was augmented in intensity by longer exposure, and the action continued unceasingly under the solar influence.

In this case, as in all preceding, the decomposition of the iodide of lead is spontaneous from the very commencement; the starch only gives evidence of the change, and continues the reaction. Does the atmosphere effect this? Two experiments made, one in hydrogen and the other in carbonic acid, forbids this supposition. In the two examples in truth the coloration under the influence of light was equally distinct and prompt without the contact of air.

Having prepared a certain quantity of iodide of lead, very pure, we mixed it whilst still moist with a thick jelly of starch, and spread this upon some sheets of white paper. This operation was performed by the light of a wax candle only. After having spread one of the sheets upon a cardboard, the yellow side upward, a piece of black lace was placed over it, and the whole brought suddenly into the light. At the end of a minute's exposure, we examined the result by candle light again: not only were all the details produced with perfect precision, but it was hard to distinguish the appearance upon the paper from the original. We were able thus to print all kinds of leaves, ostrich feathers, lizard skins, &c., in such a way that left no doubt of the value of the process, the only difficulty was to find a material to fix it.

Here follow the very simple formulæ which I use at present, and which gives excellent results. I prepare the three following solutions:

1.—Acetate of Lead (neutral)	300 parts.
Distilled Water	900 ,,
Acetic Acid 10 degrees	5 ,,
2.—Iodide of Potassium	300 ,,
Distilled Water	900 ,,
3.—Hydrochlor. of Ammonia	500 ,,
Distilled Water, only so much as will make a saturated solution.	

These three solutions should be perfectly limpid, and preserved in closely stopped bottles; the dissolved iodide of potassium as much as possible kept in the dark, and if by chance it becomes slightly brown, it should have added to it one or two drops of caustic potash.

The choice of the paper is extremely important; for we ought to reject entirely those that are sized with gelatine. The English paper, for example, gives no image; the French papers, on the contrary, are nearly all sized with starch and answer perfectly: they must be selected with the usual care as to their smooth surface and even texture, cut to the desired size and marked at the back at the extreme edge. Commencing then by candle light only, proceed as follows:—

Pour first the lead solution into a large flat dish, which should be moderately warmed. Secondly, the iodide of potassium into a similar dish, also warmed. Thirdly, the hydrochlorate of ammonia into another, which ought to be heated much more: a large pan filled with clear water acidulated with a few drops of acetic acid, should be close at hand. The sheets of paper should be placed, face downwards, upon the acetate of lead. The essential point is preventing the liquid flowing over the back and pressing out the bubbles of air, two evils which may be easily avoided. When the sheet lies perfectly flat, that is to say after about five minutes, lift it by one of the corners and suffer it to drain at the opposite end. Place it then upon some folds of clean blotting paper, applying several sheet over and dab slightly, reversing the surface, until the liquid no longer remains upon it. The sheet should then, with the same precautions be deposited upon the bath of iodide of potassium, the surface impregnated with the lead in contact with the liquid; after three or four minutes, lift by the corners and get rid of the excess of liquid as before. The sheet is now ready for use. For the production of an object, no more operation is necessary than for the production of a positive proof upon paper, simply putting the object to be copied upon the yellow surface, covering with a clean piece of glass, and exposing to the light. The time varies according to the light; in the sun one to four seconds is enough, in the shade a few seconds to a minute. The image is soon visible but should be examined by candle-light.

All the parts in the object sufficiently dark to shut out the light, leave the yellow unaltered upon the paper; all the transparent portions, on the contrary, are formed by the gradations of these colors. The paper gives the clearest image when moist, when dried the effect is more difficult to produce and is less satisfactory.

It now remains to fix the proof; in doing this the tints are changed in color, the yellows become white and the greens deep violet or deeper green. After several trials I found sulphate of magnesia, bicarbonate of potash and muriate of ammonia accomplish this; sea salt would no doubt answer, but sal ammoniac is the best; plunge the proof then into this solution until when seen by transparent no yellow is perceptible, wash well in a pan of water, and hang to dry spontaneously.

We have also made further trials with starch solutions. The starch was disorganized by prolonged boiling with caustic potash, the liquor after being saturated with acetic acid, served, when filtered, as a vehicle for the iodide of potassium and the acetate of lead. The proofs gain a little in vigor, and the exposure is shorter. Farther experiments are necessary. We are not able to say whether this method would answer with the camera, not having an instrument, but there is little doubt that negatives obtained by salts of silver would furnish proofs of artistic value by this process.

For the Photographic & Fine Art Journal.

THE AMBROTYPE PATENT CASE.

It has been known for several months, that various suits were pending in the Superior Court of this city, entitled Tomlinson *vs.* others, for an alledged infringement of the right to use the word Ambrotype, in the production of positive pictures on glass.

This Mr. W. A. Tomlinson holds the assignment of a patent from Mr. Cutting, the original patentee for the use of said patent right in this city, and he long since conceived the idea that his vested rights had been trampled on in the use of the name of the word Ambrotype.

In order to test this right, he commenced suits against Messrs. Battelle & Grey, Mr. Bogardus, Lewis & Hall, Mr. Burgess, and others.

One of these suits against Battelle & Grey, came off during the February term, or rather was called on for trial. The defendants were ready and anxious for the decision.

After various delays the suit was reached, and the pleadings submitted to Judge Duer, the presiding judge of the term.

His opinion was very soon expressed against the validity of any such suit being maintained before a State Court.

He decided positively, that if any right existed to use the name Ambrotype exclusively by the parties holding the patent, such right came directly through the patent, therefore he dismissed the case from this court.

Now the word is not even mentioned in the specifications of the Patent.

The judge also informed the Plaintiff that he must appeal to the United States Court, for any infringement of his patent as this was clearly an infringement case and nothing else.

It did not even come under the denomination of a trade-mark—for here was an express patent claimed. How then could the plaintiff claim both patent and trade-mark. It was clearly against all precedent.

The counsel for the defendants informed the learned judge, that the case had been once decided in the United States Court, for the District of Virginia, and the patent was then declared null and void. Hence the present futile attempt to recover damages on the plea of the use of a trade-mark.

The judge then explained a case as referring to a trade-mark. A person holds a secret for a certain process in the manufacture of an article, calling the said article by a distinctive name, and it is known only by that name to the public. Now if another person makes an article similar in appearance, and attempts to sell it by that name, no matter whether it is the same or not, then he the owner of the original secret can sustain his claim to the use of the trade-mark.

Here the case was quite different; these pictures were actually known by other names to the public—and the most proper one was positive pictures on glass. But Mr. Cutting and his *cnofreres* have merely changed the name to Ambrotype—nor do they claim any new process of making the pictures, only in their patent they claim a new method of sealing them up. Yet even this has been proved no new method on the trial of the case in the Virginia court.

With what reason can they claim to be heard before a state court in this matter, seems to be only to be found in the fertile brain of the lawyer who counselled Messrs. Tomlinson and Cutting, to venture on the uncertain sea of law.

The judge in his final decision was willing to hear any authorities cited bearing on this case; so the matter was deferred until such time as the plaintiff's counsel should see proper to call it again in court. Yet the mind of the learned judge was perfectly clear and decided on the point in reference to the name, that the plaintiff's could not legally claim it, except through the Patent.

It is questionable now, whether it will ever be called up again, except indeed before the United States Court, where it clearly belongs. And as it has been once decided adverse to the patent, it may indeed seem the height of folly to call it up there, where a like fate awaits it.

It is hoped therefore, that Messrs. Tomlinson and Cutting will now learn from this clearly expressed opinion of Judge Duer, that there remains now no hope of damages from the fraternity, whom they have so mercilessly assailed with bad epithets of pilferers, infringers, and such like names.

The public themselves have been nauseated with the Cutting Patent Ambrotypes, quite long enough, and those who are presumptuous enough now to claim any validity in the use of the name, will be looked upon as demented.

From the Liverpool Photographic Journal.

THEORY OF PHOTOGRAPHY.

BY PROFESSOR FRANKLAND.

The chemical changes which are ordinarily manfest during the operations of photography, may be considered as five, and readily suggest themselves, viz.: preparation, exposure, development, fixing, and toning. The most simple of course are the preparation of positives; the paper, steeped in a bath of salt and dried, is put in contact with nitrate of silver; by the decomposition, nitrate of soda and chloride of silver are formed, the soda is dissolved out, the silver remains; and an excess of this is always needed, no matter what the preliminary salt might be, a form of silver, insoluble in water, remains upon the surface of the paper. The same theory applies also to collodion: here the result of the admixture of collodion and bath produces iodide, or iodide and bromide of silver, according to the contents of the collodion. But too frequently free iodine exists in the collodion, particularly if it be old; this, by forming an iodate of silver, materially retards the action of the light on the excited surface. Whence comes this free iodine in the collodion ?—not from the presence of nitric acid in the gun-cotton, as supposed by some, because it has been observed where no gun-cotton has been added: æther attracts oxygen from the atmosphere, thereby forming acetic acid: this acting upon the iodide of potassium forms acetate of potassa and hydriodic acid; this farther decomposed by light forms hydrogen and iodine. A plate of cadmium will absorb this liberated iodine, and re-form iodide of silver when in the exciting bath. The same applies in like manner both to the calotype and daguerreotype processes; the action of light upon a sensible surface produced by the decomposition of inert substances and formation of new and sensitive salts. The effect of light in these is twofold, molecular and chemical, a much more feeble light will produce the first, than effect the second; and as the iodide or bromide is not thereby disengaged, M. Claudet has proved that it *may* return to its primitive state if exposed to red or orange colored light. The daguerrean image is produced by minute globules of mercury attached to the exposed surface of silver: in like manner the molecular change takes place in the calotype, collodion or albuminized paper, but in either case the image is rendered visible by the deposit of metallic particles of silver upon those parts of the surface which have been crystallized or roughened by the action of the light. Most probably it is a sub-chloride or sub-oxide of silver, though many suppose it to be metallic silver. Mr. Guthrie from analysis believes it a mixture of both, but this does not appear satisfactory as relates to a short exposure, as for positives; for the dark parts of the image are easily soluble in cyanide of potassium—now metallic silver is only slightly soluble in this salt. Thus M. Wohler demonstrates the actual existence of subsalts of silver, both brown and black. Pyrogallic acid is a powerful deoxydizing agent, and deposits reduced silver under a form much more minutely divided than the iron of salt does, whilst it also is decomposed, giving up acetic acid and a brown substance not yet ascertained.

The whitening by bi-chloride of mercury is a deposit of proto-chloride or calomel; the ammonia changes this into a sub-oxide of mercury; the same may be done with sulphide of ammonium, but then sulphuret of mercury is produced; these changes however are bad; it is better to convert the proto-chloride into proto-iodide by plunging it into a dilute solution of iodide of potassium: the sub-oxide of mercury is a bright yellow and quite impervious to the chemical rays of light, and yet preserves the demi-tints of the picture.

Of all the fixing agents, hyposulphite of soda is the most efficacious, as it removes the whole of the sensible salt unacted on by light. Where a chloride of silver has been used, ammonia may be used instead, but bromides and iodides are not soluble in ammonia; iodide of potassium and common salt will partially fix the image, but the salts of silver, formed by their combination, are not insensible to light; whereas all the salts of silver are soluble in hyposulphite, which, by forming a double salt of silver and soda, can be removed by a careful washing.

From La Lumiere.

POSITIVE PROOFS.

Translated from the French of L'Ablé Dupratz.

BY W. GRIGG, ESQ.

TRANSPARENCY.*

The printing of positives by means of chloride of silver, generally gives results so excellent and with a facility of execution so great, that, as regards these two capital points, there seems nothing left to be done. The attention of photographers has for some time, also been directed principally to the proper methods, under suitable conditions, of fixing and finishing the proof. Chloride of silver, it is true, has been charged with a want of sensitiveness, antagonistic to rapid and multiplied drafting. For greater celerity, iodide of silver and continuing agents have been tried. We do not wish to draw here, any comparison between the two methods; it suffices us to say that the printing of positive proofs with chloride of silver, is practised at the present time by the majority of photographers, and it is doubtful whether any other process will take its place for a long period to come. It will be admitted by all that it possesses a charming simplicity which strikes us at the first, and in view of the excellent results it yields under certain conditions, we are inclined to ask ourselves, is it possible to obtain better.

In saying that the chloride of silver process is simple, we do not mean that it requires but little care on the part of the operator; on the contrary, we consider it requires an amount of practical tact proportionate to the hazard we run of obtaining very perceptible differences of tone and sharpness, while working as we believe under conditions of thorough identity.

Numerous are the qualities required in a proof, and it is not our wish to enumerate them in this place; but there is a special one, however, which should never be lacking—the transparency of the tones. What amateur has not admired the brilliant velvety tones of a proof seen through the medium of water? Then it is that he can particularly appreciate the delicacy of the details, and the softness of the mezzo-tints, but unfortunately, the water acts only as a delusive mirage, and the proofs once dry loose a great portion of their brilliancy. This loss of transparency is not always the same for every proof; if, as a general rule, it is greater in a weak than in a well defined negative, so does experiment equally illustrate, that even in the latter there are notable variations, the causes of which should be sought for elsewhere, than in the greater or less vigor of the negative. We have reason to believe that a defective preparation of the paper is the grand cause of a want of transparency in the proof. It is generally thought that the preparation of positive paper simply consists in imbueing this paper with chloride of silver from double decomposition of acetate of silver and an alkaline chloride; for ourselves, we hold something more to be necessary ere the preparation be complete. But, before proceeding further, we will give a few theoretical data.

It is well known that when a solution of alkaline chloride is combined with another solution of acetate of silver, there arises a mutual decomposition of the two salts on the one hand, and on the other, a formation of a soluble acetate having as a base, that of the chloride employed. The atomic composition of the substance, indicates the formulas according to which the mixture is to be made in order to induce perfect decomposition. These proportions, in chemistry rigorously exact, are much less so in photographpy, as we shall hereafter explain. Notwithstanding the divers degrees of affinity of the chlorine for the bases, it may be admitted that, in a photographic point of view, the alkaline chlorides are all equally efficacious for the decomposition of acetate of silver. A complete indifference as to choice is attended with no detrimental consequence, and if, in practice, some photographers use chloride of ammonia, it is because it is less capable than the others of absorbing the moisture of the air.

Special works on photography give all the proportions of alkaline salt and acetate of silver which are to enter the preliminary baths for positive papers. They also indicate the duration of the different immersions. By following these data, we sometimes obtain perfect results, but at others such as often leave much to be desired. Whence arises these mistakes in an operation which appears so simple? We have cause to believe that the inferior proofs are given by paper containing chloride of silver, and that the superiority of the others is owing to an excess of acetate of silver. To convince ourselves, let us examine the respective roles of the two salts in the formation of the photographic picture. The first thing that strikes us is that the action of the light being exercised on compounds of different degrees of impressibility, two distinct effects should result. The action on the chloride of silver is relatively much more prompt and stronger than on the acetate. The first becomes, in a space of time more or less considerable, completely black, while during the same time, the second can only reach a more or less deep fawn color. The union of these two tints seems to us necessary to a complete result, but as this commonly takes place under certain conditions, we will indicate the precautions proper to attain it under all circumstances.

Let us first show how these two tints united are to produce the transparent effects in question. To be more intelligible we will draw a comparison. The painter with his devices for obtaining his beautiful transparent effects, seems to hint to the photographer a course analogous to that followed by himself. The painter has his resource in his varnishes, the photographer too has his different degrees of depth in tone, one deep and opaque, given by the chloride of silver deeply blackened by the light; another, much more clear notwithstanding its depth. The first is superficial, the other may penetrate the paper to a greater depth; the latter supports the other which, in spite of its greater opacity, veils it completely only in the darker shades. In the mean tints, the fawn tint of the acetate of silver preserves its entire power of coloration; it may be observed moreover, that the ulterior washes exert on it but a comparatively feeble destructive action. If this be the course of things, it may be conceived that the slight contrast of these two superposed tints should strangely contribute to the general harmony of the proof, and assure to it transparency and brilliancy.

Now what are the conditions under which we are to work, to obtain uniformly, the two coatings of silver? As regards this matter, we do not think it possible to proceed with any fixed proportions. The matter before us, as the reader should have forseen, is not mechanical labor, but rather the appreciating judgment of the mind which is not to be restrained within any fixed and infrangible boundaries, the nature of which it is always possible to express in a very few words. We will admit in principle, therefore, that to obtain a good positive paper, it should be coated in the first place with *a very minute film of alkaline chloride*, and in the second place, with *a proportionately very thick film of acetate of silver*. To produce these two effects, we have several matters serving as guides. First, the duration of the immersion in the two successive baths, the degree of concentration of these two baths, the thickness of the paper, the strength of its sizing, and its degree of permeability, neither should the question of temperature be neglected, and the fact of the baths becoming weak by use should be borne in mind. While the silver bath is gradually growing weaker, it becomes charged, moreover, with a rather noticeable quantity of alkaline acetate, a neutral salt, it is true, but which, by mechanically interposing between the molecules of chloride of silver deposited on the paper, is of a most disastrous effect, as a paper thus prepared gives only weak ashy proofs. An excess of alkaline chloride in the first bath, produces another equally deplorable effect; although the positive paper in such a case gives a very black proof if the immersion be prolonged, yet its too great opacity now prevents the proof from attaining all its desirable delicacy. It may be perceived that in the question before us, it is scarcely possible to proceed with any given figures, yet we may have one infallible characteristic by which we may assure ourselves whether the paper has been prepared under suitable conditions; a well printed proof should be of a *bistre black* in the shades, and of a decided *roseate* hue in mean-tints. A general *dark violet* would indicate an excess of chloride of silver and a want of acetate of the same base. Lastly, in order that the operator may enter with greater facility the course we have laid down, we may observe that under ordinary circumstances, we find it well to immerse the paper two or three minutes in a salt bath, prepared by simply throwing an excess of salt into a vessel of water, and filtering in about five minutes. As to the bath of acetate of silver, it is uniformly prepared at 20 per cent. We submit our salted paper to its action from seven to ten minutes, in order that the solution of silver may penetrate nearly through the paper.

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* The ideas here given on the transparency of proofs, do not present their entire value, unless the fixing and finishing has been conducted by the method we have given in the May No. of "La Lumiere."

It may be said that this is shackling a process, which heretofore was generally regarded as extremely simple, and as giving uniformly without much care, results which it was agreed to consider satisfactory. We take no heed of this objection. We take our stand with those true artists who do not deem it right that photography should be degraded to the rank of the purely mechanical, but rather that she should seek to rise to that of the right liberal arts.

Doubtless, formulas have their importance, but it is only by a certain appreciation of the judgment, that it is ever possible to draw from them their peculiar advantages.

May we be allowed to draw the attention of chemists here, to the nature of the complex coating we have just been considering. We are aware that this coating has been the object of numerous investigations; the action of light on chloride of silver in particular has been treated at length. But positive paper is not composed of chloride of silver alone; it always contains more or less free acetate. It is very certain that it acts also on this compound. Acetate of silver in the crystal form is little, if at all, effected by light; but not so when this salt comes in contact with a vegetable matter, such as paper; or animal as parchment, horn, etc. What is the action of light in these two cases? As to that exercised in chloride of silver, it is said that it exists in the expulsion of chlorine.* Can science be content with such a vague comprehension? Does the explanation mean that chlorine is really disengaged, and becomes free? If so, there is nothing more easy than to prove it, the reactions of chlorine being well known. A close glass vessel containing a sheet of positive paper, and exposed to the light, should, in a certain period, be filled with chlorine. If light acts in a like manner on acetate of silver, the same experiment made on paper impregnated with this salt should give acetic acid. It is very doubtful to us whether the experiment will produce such results, which results, however, must necessarily take place if there be a real emission of gas or acid. But if there be no evolution of either of these bodies, in what then, does this mysterious compound of the positive proof consist? Must it be admitted that, through the action of light, the atomic equivalents of the chlorine and acetate of silver have been changed; that the chlorine or the acid, for instance, abandoning a portion of the silver, takes to the remainder, or rather forms a peculiar combination with the vegetable or animal substance which they have imbibed? There is nothing to authorize the admission of this hypothesis; but it would be difficult to prove it totally chimerical. In fact, who would dare affirm that under the action of light, new combinations, till now unknown, are completely impossible?

Let us hope that science will at last penetrate these profound arcana of nature. The chemist will reap glory in their elucidation, and Photography will be vastly benefitted. It is our belief that positives will never be absolutely fixed until we possess a thorough acquaintance of the elements which constitute them.

Louhaus, Nov. 1856.

OUR ILLUSTRATIONS.

The first photographic illustration in this month's number represents the Power's Group of Statuary as exhibited at the New York Crystal Palace during the Great World's Exhibition. The first figure to the left is that of the Fisher Boy. It is thus criticised in Putnam's descriptive work of the exhibition: "The Fisher Boy of Powers' is not, in our judgment, a rival of the statuary that stood near it, the Eve and the Greek Slave, and falls far short of the admirable truth and beauty of the busts in which our great sculptor is confessedly unrivalled. The sentiment of the statue is expressed in those finest lines of Landor, describing the murmuring shell:

> Then apply
> Its polished lips to your attentive ear,
> And it remembers its august abodes,
> And murmurs as the ocean murmurs there."

Eve occupies the most conspicuous place in the centre; the Greek Slave is next to her right, and Proserpine is seen at the extreme right of the picture. We quote, in regard to these marbles, from the above work

"The genius of Hiram Powers is represented in the New York Exhibition by four of his works, the Fisher Boy, Proserpine, the Greek Slave and the Eve.

So many of the works of Powers were never before assembled, except in his own studio; and in respect to sculpture generally, the collection is one of unexampled richness and extent in this country. That it has had, and will continue to have, its appropriate influence in forming and directing the public taste, cannot be doubted. For obvious reasons, Americans have enjoyed very few opportunities of seeing sculptors of real merit. Probably, Italian image boys are the only missionaries of art who have found their way to the majority. To thousands, then, of his countrymen, these works of Powers have been a revelation of beauty not less instructive than delightful. We may be sure, that after this practical acquaintance with art, they will have clearer notions of its capabilities, and appreciate better the skill, enthusiasm and genius of the artist.

"The Greek Slave has been frequently described, and we need not repeat here the familiar story which she is designed to represent. It was this statue that first introduced the name and merits of Powers to the English public, and it has probably contributed most to his popular fame.

"The Eve, like the Greek Slave, is a reproduction of the antique. Connoisseurs, whose judgment we respect, say that

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* A well known experiment seems to prove that light, far from destroying the compounds into which chlorine enters, on the contrary favors them. By exposing a balloon inflated with a mixture of chlorine and hydrogen to the solar rays, it will explode, forming hydrochloric acid, *i. e.* a compound of chlorine and hydrogen.

"our sculptor's great power resides in his imitative faculty, and the patient skill with which he manipulates the surface of the marble. No modern artist has succeeded so perfectly in giving to his statuary the peculiar and indescribable look of flesh, equally removed from roughness of stone and the glossy polish of porcelain. His elastic muscle seems as if it would yield to the touch."

The marble has that delicate softness, which after all, is the peculiar and most imperishable charm of the most beautiful woman. The imaginative or creative faculty in Powers is far inferior to his manipulative skill. While this is perfect, his invention is only mediocre. The deficiency is apparent in each of the four works exhibited, but is most striking in the Eve. The face has no meaning. The body, the limbs are the perfection of physical beauty; but the beautiful soul that should animate so much loveliness is wanting. She is not the mythological Eve. She is not the "fairest of her daughters," whom Milton sung. But failing in imaginative works, Powers surpasses all other sculptors in reproducing nature. His portrait busts are perfect; the features and the character are given by him with all the fidelity of life."

Proserpine is a most exquisite ideal bust.

Our second illustration is sent us as a portrait of an Iowa Indian chief.

We cannot speak well of the negatives of either of these illustrations, although they are probably as good as could be obtained under the circumstances, being copies of daguerreotypes.

The formulas by which these were painted are as follows:

Salting Solution.

180 grs. chloride ammonium to 2 gals. water.

Nitrate Solution.

1 oz. nitrate silver to 18 oz. water.

Four ounces of the clear solution poured off, and aqua ammonia fortis added, drop by drop, until precipitation, and redissolution of the precipitate; the four ounces were then poured back, and the whole filtered.

Toning and Fixing Bath.

1 lb. hypo soda to 1 gal. water,
4 grs. chlo. gold to 1 oz. "
2 " acetate lead to 1 " "

mixed in the usual way. The nitrate solution was applied by floating the paper that is called "Papier Rive."

From the Liverpool Photographic Journal.

LARGE vs. SMALL LENSES.

As there is no error more frequent, so there is certainly none more delusive, than that which presumes on the folly and incapacity of others, and our own wisdom and infallability. We are never so wrong, it has been well put, as when believing ourselves alone right; and the accuracy of this statement has in no instance been more completely verified than in the remarks made recently by Sir David Brewster on small and large lenses, in his address to the Photographic Society of Scotland. Sir David believes all the world wrong, leaving it to be inferred consequently, that he alone is wise. Never was philosopher more mistaken. With such a belief, however, the wonder is, not that he should be at fault, but that he could possibly have fallen into such a credence—the special conviction ordinarily of imperfect deduction. Amid various remarks, displaying in their elegance, force and utility, the affluence of his wisdom, and which we might accept as the natural expressions of his mind, he is reported to have said—"Large lenses have been introduced for portraiture. The effect of these large lenses is to give hideous representations of the sitter, and it is, doubtless, from this cause principally that photographic portraiture is so extremely defective, exaggerating every feature, and producing pictures which vary greatly with the camera and the lens or lenses which belong to it. The only remedy for these evils is to use small lenses, and when the sensitiveness of the photographic process is increased, we may hope to work with lenses not larger than the pupil of the human eye." The favorite nostrum of Sir David for some time past has been known to be this theory of small lenses, but we were scarcely prepared for such a proposed panacea, for the thousand ills photography is heir to, as is suggested in this last sentence; so little also were we prepared for such a series of blows at the art, quietly and effectively delivered, as is contained in the preceding paragraph. Were a less eminent personage in question, we might be inclined to characterize the entire passage as marked by an audacity of assumption and recklessness of assertion which should disentitle it to notice; but the most careless statements of this great man necessarily carry a weight removing them from the possibility of such an imputation. To say that photographers use lenses which give hideous representations of their sitters, is merely to assert that they and the public equally lack discernment—they for perpetuating deformity, the public for purchashing it. The epithet hideous implying something so palpably wrong, that no state of mind short of idiotcy on either side would explain their persistency. Sir David may imagine the world foolish enough to buy hideous pictures of itself, we do not. To reject these exaggerated expressions and accept the proposition they contain as truth, would be equally fallacious. If small lenses were preferable to large ones, photographers would adopt them. If large ones distorted the figure, the great body of artists, directly and indirectly, by taste and necessity, connected with photography, would speedily correct the taste of photographers, even assuming Sir David to have so much more accurate an eye than these last for drawing; but to assume that neither the public, artists, nor the educated portion of the profession know anything of drawing or of artistic principles, is really to assume too much. But the fact actually is the reverse of Sir David's statement, and the majority of errors in delineation, where such errors are caused by the lens at all and not by the position of the object relatively, are really caused by the use of small lenses tasked beyond their power. Whatever the difference that ought to exist theoretically, practically, the advantage is altogether in favor of large lenses. It is not correct that it should be so, but it is so. "It is against the constitution that you should be in the stocks," says the orthodox lawyer. "But I am in," replies the unfortunate delinquent. "But they cannot put you in." "But I am in," is the response. "No matter, it cannot be done." Sir David Brewster tells us "that correct pictures cannot be taken with large lenses," but they are taken. "No matter, the human eye is the standard, and that is not an inch in diameter, therefore, your lenses must be no larger." By a parity of reasoning, no merchant vessel should be larger than a nautilus shell. Abstractly, no lenses may be perfect—indeed, are not; but for all practical purposes, for capacity and accuracy of delineation sufficient to satisfy the most captious and educated eye, the majority of large lenses in use by qualified practitioners, transcribe with sufficient fidelity. Where distortion occurs, it is more frequently from defective application than from intrinsic imperfection. If the operator finds, as is frequently the case, his lens incapable of conveying a round or square, and an elliptical or merely linear object, with equal fidelity, he confines its use, as might be supposed, to those objects of which it transmits the image unimpaired. It may be perceived that "hideous" inaccuracy is shunned by all, and any, even the slightest distortion, by the majority. Where, however, the "hideous misrepresentation" is latent and invisible, as photographers appeal through the eye to the mind, the same care cannot be supposed to be taken—the small number of philosophers rendering it unnecessary that their taste alone should be considered.

In conclusion, it may be averred that although it is possible that the philosophic eye may detect latent deformity, it is probable that it cannot; for the presumption exists that no person in the world can dimcriminate, in an image, whether it was produced by a large or a small lens. As the size of the lens cannot be ascertained by the nature of the image in any case, the public may rest satisfied that the superiority of small lenses is not proven, and that the question of "small *vs.* large lenses" is still open. J. T. F.

From the Revue Photographique

PHOTOGRAPHY ON PRESERVED PLATES.

BY M. HUMBERT DE MOLARD.

Some particulars on the subject of a new kind of preservation of collodion plates will not fail to interest all classes of operators.

M. Dubois de Néhaut has just received from an intimate friend, M. Franck de Villechole, a distinguished amateur of Barcelona, the instructions concerning it; we have followed these directions implicitly, and have constantly succeeded; the method is extremely simple. Take of

Distilled Water (cold)	200 parts
Acetic Acid	30 "
Linseed	20 "

Let these macerate in a glass vessel for about twelve hours and then strain through fine linen. The mucilage thus acidulated will keep above eight days without undergoing decomposition; it ought to be colorless and slightly viscous. Upon taking out from the sensitizing bath, the plate collodionized as usual is immediately covered [without washing—Ed. L.P.J.] with the above-named mucilage, which is poured on and off until it presents a perfectly even surface without marblings or striæ; the plate should be set up at an angle to drain, and loses but little sensibility on drying. In a good light a portrait was obtained in about 30 seconds, in an hour after preservation. Four or five hours after, and when consequently dry, it proved as satisfactory as moist collodion—that is to say—a good picture in about 30 seconds in the sun, and about a minute in variable weather. The next day, or about 24 hours after about 1½ minute exposure. Probably, it would be possible to conserve for a longer time, but as yet no attempt has been made. When returned from exposing the plate, the development may be effected either by pyrogallic acid or a bath of iron, without any *previous washing*, to soften or remove the mucilage; and the operation completed under favorable circumstances, as with ordinary collodion, without fear of its spoling by desiccation when the exposure is long, as in the case of dark colored or dimly lighted monuments, requiring some hours' delay in the camera. This offers also all the advantages looked for from honey, oxymel, glycerine, and deliquescent salts without fear of contracting dust or contamination in the slides, besides presenting such great facilities in the development.

NEW CARMINE FROM THE MONARDA DIDYMA.

Translated for the Photographic and Fine Art Journal, from the French of Mr. Shuller, by Ange Mercieru Rossi: Quarter Master of the late British Legion.

I have placed before the Academy, the result of a discovery that I have recently made in investigating tinctorial matters among plants; it is relative to the *Monarda didyma of Linneus*, cultivated long ago. This plant is indigenous to North America, and might be eminently serviceable to the arts, and for dying purposes. The coloring matter it contains is a carmine substance, that has been obtained only from the nopal fruit and the insect called cochineale, and which is important in commerce.

This tinctorial matter is found in the corolla, and as the plant abounds with it, it might easily be obtained at a cheap rate. The flowers, by immersion in water, are immediately saturated; in presence of lime water it dyes a violet tinge; with the acetate of lead it dyes a violet also; with hydrochloric and sulphuric acids instantly dyes a dark reddish orange; potash changes it to golden yellow; ammonia colors it brown; the sulphate of iron changes it to a deep red; the water of baryta, violet crimson; the sulphate of alumine, the lighter primitive colors. From these experiments, you may safely decide that the *monarda didyma* possesses all the characters of carmine; and by boiling the solution with alcohol, when cool you obtain a precipitate which is carmine.

This coloring principle gives to silk such a tint, that it may be advantageously employed.

From the Liverpool Photographic Journal.

PROCESS FOR COLLODION IN A DRY STATE.

BY M. LEON CASSAGNE.

M. Cassagne, who has already done good service to photographers by making cameras extending like accordions, has occupied the Societé Francaise on the subject of a dry collodion, which he avers has been most satisfactory in its products. After giving most minute directions in the prepartion of this collodion, that is to say, preserved in small bottles, and kept free from great heat, has given in the winter an excellent positive, in one or two seconds in the sun, or ten to fifteen seconds in the shade, and a very fine negative in twenty to twenty-six seconds in summer, or forty to fifty seconds in winter; and does not lose its photographic qualities after being mixed a month or six weeks. Its composition is—

	Grammes.
Collodion, simple	125· 0
Iodide of potassium, finely powdered and dissolved in a little alcohol	0· 8
Fluoride of potassium, dissolved in the least possible quantity of water	0· 1
Iodide of ammonium, dissolved in a very little alcohol	0· 8
Bromide of cadmium and cloride of ditto, each	0.25
Saturated solution of chloride of soda	10 drops.
Benzoin of Colas in æther	5 "

Such is the collodion which either perfectly or partially moist, or even in a state completely dry, after one, two, or three days from the preparation, I employ to obtain negatives possessing the most successful qualities."

M. Cassagne also pours over his plates diluted honey, after the manner of Mr. Maxwell Lyte.

"On returning to the preparing room, lighted only by a candle, I plunge my glass, collodion side upwards, in a dish containing the first water with which I have washed away the excess of nitrate,—[no previous mention is made of washing—Ed. L.P.J.] and after a minute's immersion, I take it out and place the glass on a levelling stand, pouring quickly on the following developing fluid:—

	Grammes.	
Pyrogallic acid	0. 3	= 5½ grains.
Citric acid	1. 0	= 15½ "
Distilled water	50. 0	=12 drams.
Gallic acid	0. 2	=3½ grains.
Alcohol	2. 0	=0½ dram.

This should only be prepared a few hours before being used, and previously filtered; to it must be added from about one to two drams of a solution of nitrate of silver, about two per cent. strength; throw this quickly over, and when fully out, wash carefully and clear with cyanide; wash again with renewed care, and without waiting for its drying, pour over it pure albumen, and then leave it to dry, away from any dust.

It is possible to develope the latent image on dry collodion in the following manner, with proto-sulphate of iron:—After exposure wash the glass with filtered spring water, and pour over the surface a solution of nitrate of silver, five per cent. strength, so as to cover it entirely for about one minute; throw this off, and plunge the glass rapidly into a bath of sulphate of iron [strength not stated—Ed. L.P.J.]; the image appears immediately, with great softness of tint, and wanting nothing in vigor and sharpness. Certainly I have remarked the blacks, not quite equal to the former; in that they are as deep as lampblack, whilst in this, the iron gives a violet black, rather thin, but very fine."

PHOTOGRAPHY BY ARTIFICIAL LIGHT.

A very brilliant light has been produced by directing a stream of oxygen gas into a flame of coal gas which had been previously passed through cotton, saturated with naptha in order to surcharge it with carbon. Using a reflector with this light, a photograph of an engraving was taken by the camera in a very short period; and Prof. Böttger states that he has succeeded in obtaining good daguerreotypes and photographs by the light of phosphorous, or sulphur, burnt in oxygen.

MISCELLANEOUS ITEMS.*

BY D. D. T. DAVIE.

PHOTOGRAPHIC LIGHT.

The best constructed light for single pictures that has come under my observation, was facing to the north-west, and lying at an angle of 45 degrees or thereabouts. The base or lower part of the light was some 5 feet from the floor, 10 feet wide, and extended upwards of 15 or 17 feet, making the ridge or highest portion of the light, some 13 or 14 feet above the floor. A light arranged after this plan aided by movable side screens, will, under ordinary circumstances or conditions of light, produce any effect that may be desired. It will be seen that this light will travel obliquely across the model, and without reflected light, the shadows will fall heavily at an angle of 45 degrees, producing a bold and artistic effect. To modify the shadows and gives softer effect, or more uniform shading, place a screen (covered with white muslin) on the opposite side of the model from the light, and elevate it so as to soften the shadows as much or as little as is desired. Screens covered with black, blue, green, and other colors, may be used advantageously in the distribution of light and shadow upon the model; different contours and complexions, require different treatment, different positions in the light, and also different reflected light.

This light may be used with tolerable success in grouping, where the number does not exceed 5 or 6, and whose complexions vary so as to work them uniformly, by placing the darkest complexions in the strongest light. The better light, however, for grouping, is obtained from an opening in a flat roof, with the window or sash (on one side and both ends) in the space of the ridge or roof of an old fashioned house. In this case, the opening in the roof should be at least 10 feet wide and 14 or 16 feet long, and should face the north-west. The light or sash should be extended high enough to exclude the sun from shining on or through it. A light of this description should be at its base not to exceed 10 feet from the floor. To exclude the sun from the south-west, paint it on the outside with one thin coat of white paint. By this method of receiving the light, it is uniformly distributed over a large space, and groups of 10 to 75 or 100 may be quickly and uniformly worked. This construction of light is very uniform in its effect, and produces a clear, soft impression, such as is more commonly sought after by the patrons of the photographic art. It also works well on a single figure, and with the aid of reflected light by side screens, choice results are often obtained.

COPYING DAGUERREOTYPES, AMBROTYPES, &C.

Copying daguerreotypes and ambrotypes cannot be done successfully by a large light, nor where different lights are reflected on the plate. There is but one way to copy successfully, and that is by a small light, say three 8x10 lights or an atic window in a darkened room. The room for copying must absolutely be dark, excepting what light is admitted through the one window, otherwise copies cannot uniformly compare favorably with the originals. But in a darkened room and with a small direct light in the very worst of cases, copies may equal the first picture, and in 9 out of 10 cases the copies will be preferable to the first picture. By this arrangement of light, 1-9 sizes if sharp and bold, may be increased to ¼ and ½ size, and return fully the clearness and sharpness of the original; or 1-6 and 1-9 sizes may be increased to 2-3 and 4-4 size. By this arrangement of light, there is no reflection on the plate nor in the camera, and copies made in this way fully equal original impressions. The camera for copying should be fitted with a combination plate-holder, or should be so as to use it either perpendicular or horizontal, for it often becomes necessary to place the plate to be copied in a horizontal position, especially if there are heavy lines running lengthwise, they will show badly, unless placed parallel with the rays of light. C. C. Harrison's ¼ size tube is exceedingly sharp and well adapted for copying, and when placed on a 4-4, 6-4, or 8-4 size box, you have a very convenient instrument for disdatching work. In copying daguerreotypes, the plate to be copied should always be viewed in the focus of the camera, first one end, and then change it on the side next on the other end, and then on the other side, in order to determine which position gives the strongest and clearest effect. If a small daguerreotype is to be enlarged very much, it may be best to expose the plate to direct sun rays, but copying should never be done in the sun, unless intended for coloring.

The above method of copying suggested itself to me early last spring; since that time, that branch of my business has increased more than one half, and I have found the advantages in every respect very great, and should I fail in these instructions to benefit the photographer, in every respect but this, this alone is worth twice the cost of the Journal.

COPYING OIL PAINTINGS.

The advantages derived from the darkened room in copying daguerreotypes, is equally great in copying oil paintings; use the same light, but proportion it to the size of the painting. Oil paintings cannot be copied successfully, when exposed to reflected light.

From the Liverpool Photographic Journal.

M. MARTEN'S ALBUMEN PROCESS.

Mr. Martens has published in the *Bulletin de la Societe Francaise de Photographie*, some observations in which he urges the use of iodide of ammonium instead of iodide of potassium with albumen, to avoid a minute crystallization of the surface; and insists on the necessity of varying the mode of operation according to temperature, circumstances, and the objects to be photographed.

To the white of eight eggs he added

Iodide of ammonium..............	1 drachm
Sugar of milk.....................	1 "
Dextrire, (sugar of starch).........	15½ grains
Grape sugar.....................	24 "
Distilled water....................	6¼ drachms.

and beat them up in the usual way, leaving it to stand for a night: it might be used the next day. For landscapes he doubled the quantity of iodide, and in wet weather omitted the grape sugar. The plates when sensitized, if well washed, will keep ten days; and after exposure in the camera may be kept some days before developing with a saturated solution of gallic acid, to which a few drops of a 4 per cent. nitrate solution have been added: this must be done on a sheet of copper, well heated.

From the Liverpool Photographic Journal.

APPLICATION OF PHOTOGRAPHY

To the production of Fac-simile Reprints of Important MSS.

A lengthened correspondence has appeared in the *Times* relative to the possibility of obtaining, by the means of photography, a fac-simile of a celebrated manuscript copy of the Scriptures called the "Codex Vaticanus." Mr. Maxwell Lyte has written his opinion that the discoloration of the parchment and the fading of the ink will have reduced the whole to such an unformity of yellow-brown, that the power of photographs would be neutralized by the prevalence of non-actinic rays; but Mr. Delamotte, on the other hand, says that before this effect could be produced the parchment must assume a yellow, the tint produced by gamboge, and that the negative tones of brown, which the manuscript may have assumed, are not non-actinic; moreover, he sends to the Editor of the *Times* a specimen of what he had been able to do from an old MS in the Irish Academy, in 1852, in which, with very little trouble, every letter could be made out. He thinks Mr. Maxwell Lyte has over-estimated the difficulties. As he hears it is in contemplation to form a catalogue of the MSS in the Bibliotheque Imperiale, of Paris, by taking photographs of their title-pages. And, he adds, "It is too much the practice of photographers to publish the abortive results of their individual attempts as impossibilities of the art they cultivate; whereas they ought to consider that the same experiment which in the hands of one person is a failure, is often a brilliant success in the hands of another."

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* Copyright secured.

From Notes & Queries.

PHOTOGRAPHIC NOTES.

Delamotte's Oxymel Process.—When a practised photographer like Mr. Delamotte expresses his belief of any novelty in the art, that it is undoubtedly the most valuable discovery that has been made since Mr. Scott Archer introduced collodion, photographers may well feel assured that it deserves their attention; and that being the case with regard to the use of oxymel, as suggested by Mr. Llewellyn, our photographic friends will be glad to know that Mr. Delamotte has published a little treatise upon the subject. *The Oxymel Process in Photography*, by P. H. Delamotte, will enable them to try for themselves the advantages of a discovery by which, to use Mr. Delamotte's words, "all the beautiful delicacy of the finest collodion pictures may be obtained with the convenience of the paper process, and with much more certainty and much greater ease."

Howlett on Printing Photographs.—What we have just said with reference to Mr. Delamotte is applicable to Mr. Howlett. This gentleman has been so successful as a photographer, and as a printer of photographs—for some copies of architectural drawings by Indian artists which we have seen lately, copied and printed by him, we reckon among the triumphs of photography—that his suggestions as to the best mode of multiplying photographs must command attention; and there can be no doubt that the brochure which he has just published *On the various Methods of Printing Photographic Pictures, with a few Hints on their Preservation,* well deserves the perusal of all who have negatives of which they desire to multiply impressions.

Maull and Paulyblank's "Living Celebrities."—We have received two more numbers of this very interesting series of portraits. The first gives us a portrait of the great sculptor Edward Hodges Baily, whose "Eve at the Fountain" is dear to all lovers of the beautiful. The next furnishes us with a portrait of Samuel Warren, whose "Diary of a late Physician," and "Ten Thousand a Year," are familiar to all readers. Both portraits are of great interest; and when we consider what we would give for such a truthful series of the notables of the reigns of Elizabeth, or Anne, we may anticipate the delight with which future generations will regard these "Living Celebrities" of the age of Victoria.

Personal & Art Intelligence.

— We are wearied with making excuses for the shortcomings in the issue of our Journal, and we shall make no more. We have done the best we could under the circumstances to publish it in due season; but we are not proof against mishaps. Having ensured the prompt printing of our illustrations, and overcome that worst of evils, we have been met by others as unforeseen as sudden. But enough of this: we are determined to overcome *all* difficulties, and we trust our subscribers will have as much patience with *our* shortcomings as we have had with *theirs*, in being so backward in paying up.

— The all-absorbing subject in Photography during the present month, has been the exhibition of Hallotype pictures at the galleries of Messrs. J. Gurney and J. B. Hall. These exhibitions have fully met our expectations in the extent and beauty of the pictures. We have already given our views fully in regard to them, and we are not in the least disappointed upon examining the specimens placed before us, and we can only again repeat our former expressions of the high estimation in which we hold them. The display made by Mr. Gurney was large, embracing pictures from the cabinet size down to 4-4. Thousands have visited his gallery, and there seemed to be but one expression of feeling in regard to them, as we stood and listened to the comments made by those around us, and that was of unqualified admiration. In the production of these pictures, Mr. Gurney fully sustains his reputation in the Photographic Art. Owing to some misunderstanding, Mr. Hall did not make much of a display on the day announced for the opening of the exhibition. He had, however, two fine specimens on view. We regretted exceedingly to see the proprietors of this beautiful art starting in the race for public favor in such direct hostility; but we are pleased to learn from the following correspondence, that the breach in their friendship has been healed:

TO PHOTOGRAPHIC ARTISTS AND THE PUBLIC.

The following note from Mr. Hall requires a public reply:

Temple of Art, No. 585 Broadway, Feb. 24, 1857.

J. Gurney, Esq.—*Dear Sir:* My attention has been called to your card of the 17th inst., published in the *Tribune* and *Times*, in reply to mine of the 16th, which appeared in the same papers. My engagements have been such that I have hitherto neglected to take any steps in the matter.

You understand better than the public possibly can, the reasons which prompted me to pen my card. But you evidently misconstrued the somewhat ambiguous language which I employed, or your high sense of honor, propriety and justice would not have allowed you to prefer against me so grave a charge as "repudiating legal obligations" and making statements which were "false."

If you understood me as denying your right to practice the Hallotype, and your ability to present it in attractive form to the public, you could not do otherwise than to pronounce such statements false.

The peculiar circumstances of the case, in connection with the somewhat ambiguous style which I employed, has led you into an error. But there was nothing in my card which, if properly understood, could have justified the conclusions at which you arrive. And, by correcting the erroneous impressions which your card is calculated to produce, you will do honor to yourself, justice to the public and to the undersigned. Wishing you every success in the practice of the Hallotype,

I am, very truly, yours,
John Bishop Hall.

REPLY.

Mr. John B. Hall.—*Dear Sir:* Your conclusion is correct, that the "peculiar circumstances" of the case, together with the somewhat ambiguous language which you employed, did lead me to misunderstand your meaning, and it affords me pleasure to be able to make this correction.

A discriminating public will award to you the honor of having invented the most brilliant improvement in the photographic art, and which I am determined to present to the public in all its exquisite perfection and beauty. Yours, truly,

J. Gurney, Photographic Artist.

Palace of Art, No. 349 Broadway, Feb. 26, 1857.

We, the undersigned, copartners in the disposal of the patent rights, throughout the United States and Europe, for this new style of portraiture called Hallotype, would inform Photographic artists and amateurs that we are now ready to dispose of said rights to suit purchasers.

John Bishop Hall,
J. Gurney.

All business letters to be addressed to Gurney's Palace of Art, No. 349 Broadway, cor. of Leonard street, New York.

To the many inquiries we have received in regard to the disposition of patent rights, we have to state that the prices are based upon the number of inhabitants in each town or county, and range from $200 upwards. A number of rights have been already sold at prices far exceeding anything ever before paid for photographic processes, and we venture to say that those who have made the purchase will reap adequate remuneration.

— German Method.—The proportion seems large, and we think *it is* unnecessarily so, although we know several photographic artists who use the same precisely in other processes. We are satisfied that under every and all circumstances, 1 oz. of nitrate of silver to 1 lb. of water is as high as any one need use.

— Messrs. Cutting and Rehn have instituted proceedings against F. Keeler, of Philadelphia, in the Circuit Court of the United States, with the design of enforcing the patents for balsam-sealing, for the use of bromine in collodion, and for the overflowing bath. Mr. Keeler is just the man to resist the attempt, and the all-important question of the validity of the claims for exclusive privileges, is now in a fair way of being definitely settled. The photographic profession have now a fair opportunity of ascertaining whether they are liable to pay for the use of these patented privileges, or whether they are entitled to the free enjoyment of them, regardless of the claims set up by Cutting and Rehn. The subjects of balsam-sealing and bromine in collodion, have frequently been commented upon: the overflowing bath is substantially that sold at Anthony's, and at all other respectable stock dealers, with a reservoir or trough, &c., for carrying off floating impurities. There are but few stock dealers who are daily selling this article—but few photographers who are hourly using it that have the slightest idea that it is patented, and that they are infringing (alleged) rights. The usual scheme of using one person at a time so as to induce him to buy peace, will not succeed in this instance. Mr. Keeler will not submit to it, although $100 would let him "free of the law." He prefers taking an independent stand on behalf of his profession, and he requests that all who are possessed of information on these subjects will, at earliest convenience, communicate it by mail to him or to his counsel, C. Guilloû, Esq.

— The pictures by Mr. Brady, spoken of in the following communication, are certainly deserving the encomiums bestowed upon them. They are retouched photographs finished in the most elaborate and skillful manner, by a most artistic hand:—

The Capabilities of the Camera.—The public are under an obligation to Mr. Brady, the celebrated photographer of Broadway, for his improvement in the daguerrean (?) process of taking portraits, scarcely secondary to that which is due to the memory of the inventor of the art himself. There have been a good many unsuccessful attempts made to improve the camera, but Mr. Brady is entitled to the credit of having developed its resources to the greatest extent of any man who has practised the art of photography either in this country or Europe. This is a conceded fact by all the men of science who have visited Mr. Brady's gallery, and the artists, whose judgment and instincts in a case like this is worth much more than the opinions of an ordinary connoisseur. Mr. Brady rejects all the eccentrities and charlatanries of the profession, and confines himself solely to the legitimate, scientific posibilities of his art. And, in doing this, he has arrived at results which entitle him to the gratitude, not only of men of science and artists, but of the great public who reap the benefits of his labors.

The style of portraits which Mr. Brady now produces, is different from that which any other operator has succeeded in making. It is only within the past two or three months that he has brought his photographs to that degree of excellence which has excited so much enthusiasm. In all the photographs which have heretofore been produced, there has been a certain roughness in the flesh, which has given an impression not only disagreeable in its effect, but untrue as a representation of the subject.(?) But, in these heads which Mr. Brady is now producing, all that unpleasant effect is avoided, and a surface as nearly as possible to the look of life has been the result. It is no wonder that his gallery should be thronged constantly, and that it should become the very Rialto of fashion and elegance. The eminent men who visit New York, are taken at once to Brady's rooms, that they may not only see all our great men grouped together there, but that they may see themselves as others see them. We have in a previous article mentioned a few of the eminent gentlemen who have recently sat or rather stood, before Mr. Brady's camera, for he now takes his subject standing; and, in doing so, he avoids that uneasy and conscious look of sitting for a portrait, which men always wear when taken in a sitting position. One of the most beautiful pictures that Brady has lately taken, is a full length portrait of Professor Lowell of Cambridge, which has excited great admiration; there is also now in his gallery a perfect marvel of the art, a colored full-length photograph of Mr. Furniss, in a cricketer's dress, a loose white jacket and trousers, with blue facings. The coloring of this superb photograph is equal to the miniature painting of Sir William Ross, while the drawing, if we may so speak of the figure, is superior to all art.

Indeed, it is a case in which art must give way to the perfection of science. No power of natural imitation or fidelity of handiwork—no appliance of the painter's art—can ever re-produce a passing expression of the human countenance as it is caught and mirrored by the scientific process which Mr. Brady has brought to such a pitch of excellence. He permanently fixes such a reflexion of one's lineaments, as can never be seen but in the looking glass and his camera. If his pictures are not literally "speaking" likenesses, they are "telling" ones; they are—to speak paraodoxically—the concentrated truth of counterfeit presentment. Mr. Brady takes a portrait of your friend, and when you look upon it, you cannot say, "Oh, yes, that is very like John Brown or Matilda Jones" (or whatever his or her name may be) "but there is something wrong about the eyes,"—or the curl of the lip or the arrangement of the hair—but you have your friend before you, his or her every beauty and most trivial defects duplicated, as like to the original as two dollars, and seemingly only wanting a slight infusion of the breath of life to walk out of the frame, (if it be in one) and shake hands with or kiss you. Damon need no longer be laughed at for pressing to his lips the representation of his adored Phyllis; for even his fastidious taste might almost be tempted into a belief in the reality of those eyes—transferred with all the dreamy haze in which they float—those lips, taken with the rich down yet mantling upon them—every feature almost palpably warm with the vitality of nature—and all the result of Brady's wonderful improvements in the magical camera.

—The Ambrotype Patent Case.—Tomlinson *vs.* Battelle came on before Judge Duer on the 24th February, when the Judge dismissed it on the grounds—first, that he had no jurisdiction in the matter—and secondly, that the plaintiff had *no ground for action.* In another column will be found a communication in regard to the matter.

— R. J. Nunn.—There is no agency in this city for any of the English or French Journals at present. The only way therefore to obtain them, is to write direct to the publishers.

Chicago, Ill., Feb. 2, 1857.

Mr. Snelling—*Dear Sir:*—As much has been said about the stereoscope, I send you a correct and simple way of taking them. Place on the usual camera-stand a board about three feet long, make a straight line across the centre; then draw two lines 5 inches each way from the centre, make the figure 8 on each, then fill the remainder of the board with lines one inch apart, with figures each way, 9, 10, 11, &c. Pace the distance from the sitter to the ground-glass, and as many feet, place the camera against the number.

Very respectfully yours,
G. D. Wakely.

— A. Wenderoth.—This gentleman has sent us three specimens of his skill as a painter, and they are truly most beautiful and artistic pictures. As a painter, they place him at the head of his art; and there is not an artist engaged in photographic art who can excel him either in photographic manipulation or in re-touching with India ink or colors. Mr. Wenderoth is now in Charleston, S. C., but is desirous of coming North, and whoever secures him will be a fortunate man. We have not the pleasure of Mr. Wenderoth's acquaintance, but from his letters, as well as from the specimens of his skill, we have every confidence in his character as a gentleman and a scholar.

— We copy the following from the *Daily Union*, of Pittsburg:

Rogers' Daguerrean and Ambrotype Gallery.—A few days since we paid a visit to the elegant and spacious Ambrotype Gallery of our neighbor, Mr. Rogers, in the Chronicle Buildings, Fifth street, and passed an exceedingly pleasant hour in looking through the rooms and examining the various beautiful paintings, ambrotypes, etc., which adorn the reception room. The 4th and 5th stories of the building were finished expressly for a first class ambrotype gallery, and is not excelled by any in the two cities. They are occupied exclusively by Mr. Rogers. On the 4th story, in front, is the large and elegantly furnished waiting or reception room, beautifully decorated with paintings, likenesses, etc.; and in the rear, on the same floor, the workshop, and dark closets for finishing pictures, preparing chemicals, etc. The upper story is brilliantly lighted with sky and side lights, by means of which the most perfect pictures are taken in an incredibly short space of time. Mr. Rogers possesses every facility for the production of excellent likenesses, and being a thorough artist, he always renders full and entire satisfaction to his customers. We desire our readers, both in town and country, to pay an early visit to these rooms; and we feel confident that they will heartily coincide in everything we have said. They cannot admire the high state of perfection to which the art has been brought by Mr. Rogers, without obtaining a miniature copy of their features. Quite a number of ladies and gentlemen were availing themselves of Mr. Rogers' services during our short visit, and we commend their taste as being decidedly good. They will find the artist a perfect gentleman, and his pictures perfect likenesses.

— We have received a most exquisite copy of ———'s bust of Geneva, from Mr. Porter, of Cincinnati, and we must say that for clearness, softness and artistic finish, it surpasses any thing of the kind we have ever seen. The tone is an *intense* black, and yet perfectly transparent, while the gradations from half tints to high lights are as exquisitely refined as the touches of the most skillful painter—we may say, even, that no hand could possibly produce the purity of softness and refined blending of light and shade given in this picture.

— Our subscribers may have given up all hope of receiving the illustrations due them for *last year;* but we find ourself so much in the dark in the matter, in consequence of the proper memorandum not having been made by the person to whom the mailing was entrusted, that we are compelled to ask those who have not already done so, to send us a list of the photographs received by them during the year; we can then make up the complement due them. *Hereafter, we shall have no further trouble in giving the illustrations regularly.*

— Messrs. Faris & Irwin have introduced at their New York Gallery, the new style pictures on glass invented by Mr. Hawkins, of Cincinnati. In speaking of these pictures as exhibited at the *Fair of the American Institute*, we condemned them; but we are now pleased to say, that they have since been greatly improved and are deserving of great praise. Those now on exhibition are very beautiful, and as colored photographs on glass will, undoubtedly, find no superior of the kind.

— It will be perceived from the following extract, that Mr. J. Forrest Gowan, who has located at Spartanburg, S. C., has already made himself felt in a photographic point of view, by the inhabitants of that region:

Mr. Gowan's Gallery.—We find the following communication in the Laurensville *Herald*, from a correspondent who paid a visit to the Photographic Gallery of Mr. Gowan. Those who are skeptical about the truth of what is herein stated, can satisfy their doubts by reading Mr. G.'s advertisement, and visiting his rooms:

"Mr. Stokes: A week or two ago we paid a visit to Spartanburgh on business, and while reading the "Spartan" were struck by a rather large and flaming advertisement headed "Good News for Patrons of the Fine Arts." Curiosity influenced us to read what followed, when we found that the "good News referred to, had reference to the completion of Mr. J. Forrest Gowan's New Photogenic Gallery and Daguerreotype establishment at Spartanburgh. We determine to pay a visit to this gallery, having made up our mind beforehand to find fault with things generally. Accordingly, having finished our dinner, we wended our way to Gowan's Gallery, and after finding the house and walking up two flights of stairs, were thrown entirely off our guard by the polite and gentlemanly reception of Mr. Gowan himself. We unhesitatingly assert, that his gallery is one of the largest and most tasty which we have ever seen in any country town, and that his pictures are as fine as any which we have witnessed.

While we were present, Mr. Gowan copied a page of Tupper's Proverbial Philosophy, and the Ambrotype was so perfectly developed that every line could be read with the greatest ease. His sky-light is admirably adjusted, and his stock of Chemicals unusually large. He was kind enough to show us some of his Photographs or Paper Pictures, which certainly are the most life-like sun-sketches which our eyes ever beheld.

As to his Painted Photographs, they defy competition, and stamp the maker of them with the name of *Artist.* His stock of cases is quite varied and large, many of which are more than beautiful, and very low in price. We were pleased to learn that Mr. Gowan is a native Carolinian, and a Charlestonian by birth, the latter of which might well be guessed by his courteous demeanor and gentlemanly bearing. The object of this communication is merely to open the eyes of as many as wish to see themselves as other see them.

Daguerre."

— Mr. Stroud.—We do not wonder that your patience is considerably tried; but we hope you will exercise it a little longer. We shall comply with your request at the earliest possible moment. We shall make a change shortly that will be for the benefit of us all.

— D. C. Pratt.—The January number for 1857 was mailed to you as soon as issued. We have had so many complaints of the non-delivery of our Journal by the Post, that we mailed the January issue with our own hands, to make sure of every number being properly addressed and posted. The fault lies in the *rascally* manner in which the *present* incumbents of the post-office manage it. We hope President Buchanan will make a clean sweep of them, as such a course on his part is our only hope for the future. If all publishers lose as much in proportion as we do by the *thieving propensities* of the post-office employees, we cannot see how they can so tamely submit. We shall do so no longer, and have sent a memorial to Congress on the subject.

— Levi Chapman, of this city, having failed in his business, will offer his entire stock of photographic material at auction about the 15th of March. Those who wish to purchase cheap goods will then have an opportunity to do so.

— H. Lazier.—We will send you another copy, but this is the last case wherein we shall duplicate books sent by mail. Every book ordered of us is duly mailed, and we will not be responsible, for the future, for losses caused by the miscarriages of the post. *Our* losses in this respect are too heavy for us to bear. In every instance heretofore, we have duplicated orders where complaints have been made, and we find the items foot up to nearly $300 for the year 1856; so that it must be understood that all orders for books, &c., to be sent hereafter by mail, *must be at the risk of those ordering them.* Postage will be *pre-paid* on any of the books published by us.

— The Melainotype process of Mr. Neff is fast superceding the ambrotype, and justly so; for, apart from the greater facility in its manipulation, there can be no comparison between them as to durability and quality. The melainotype approaches nearer the daguerreotype than any collodion picture invented.

— The Sphereotype, also an exquisite style of collodion picture, is gaining ground very rapidly. There is an ariel softness and delicacy about these pictures that is exceedingly pleasing, and must claim a liberal share of public favor.

THE HARPIST.

Negative by Whipple & Black.

From the London Art-Journal.

TALK OF PICTURES AND THE PAINTERS.*

BY AN OLD TRAVELLER.

CHAPTER II.

The masterpiece of Titian, "Il Pietro Martire"—Story of Fra Pietro—St. Dominic and the Inquisition—Tomb of St. Peter the Martyr—Meritorious edict—Evil times—Exile of the Picture—Return to the Motherland—Opinions of the Authorities—The Tribute-Money—Other works of Titian in the Dresden Gallery—Cambridge—The Fitzwilliam Museum—Princess Eboli and Philip II. of Spain—Wealth of Venice in the works of Titian—Manfrini Palace—The Entombment—The Three Ages—Academy of the Fine Arts—Assumption of the Virgin—Presentation in the Temple—St. John in the Wilderness—Santa Maria Gloriosa de' Frari—Madonna of the Pesaro Chapel—San Ficoletto de Frari—Altar-piece—The titular Saint—Martyrdom of St. Sebastian—The Picture resigned to Pope Clement—Taken to the Quirinal—Pope Pius VII. bestows it on the Pinacoteca of the Vatican—Northcote in description—L'Anonimo—Padre Guliemo della Valle

As the Transfiguration among the works of Raphael, and the St. Jerome among those of Domenchino, so is the Pietro Martire among those of Titian—that picture is declared, almost without a dissentient voice, to be his best work. Most of our readers are familiar with the subject of this painting. Yet as there may be some to whom the story is not known, the general outline may be usefully given.

One of the earliest generals of the Dominicans,† Fra Pietro da Verona, immortallized by Titian in his Peter Martyr, even more effectually than by the Canons of the church, was also one of the most zealous founders of the Inquisition in Italy, where his severities caused him to be hated as well as feared. He had proved himself more particularly unjust and oppressive towards various members of a family called Cavina, and by one of these, or as others say, by a hireling suborned by them, the General of the Dominicans was assassinated. Returning from a consultation with the Grand Inquisitor, wherein measures of increased rigor had been determined on, and bearing with him instructions to that effect, he was met on his way through a wood then crossing the road from Milan to Como, and cut down by the stroke of a sabre. His only companion at the time was a lay brother of his convent; he also was attacked by a second assassin, as the chronicle relates, as is, indeed, probable;‡ but according to the artist,—that most effective writer of history,—he was a dastardly poltroon, who, making no attempt to assist or defend his superior, fled from the presence of the murderer in a frenzy of fear. Who that has seen the picture can forget the impression of terror visible in his movements, and impressed on every feature.

The canonisation of the victim was an early consequence of his death, in such a cause, shrines were raised for the worship of the new saint, and to the erection of one suptuous monument to his memory the excellent Pisan sculptor, Giovanni Balduccio, devoted some ten precious years of his too short life.

All who know the well-endowed city of Milan—and few are the lovers of Art who neglect to make her acquaintance—will remember the work in question. In the Church of Saint Eustorgio, on the Corso della Porta Ticinese, and in a chapel consecrated to St. Peter the Martyr, is the gorgeous tomb wherin the relics of the saint repose. His own statue, with those of St. Peter the Apostle, and St. Paul, the Apostle to the Gentiles,§ form the chief ornament of the mausoleum, which is further enriched by figures of St. Thomas Aquinas and the four Fathers of the church, all in the finest marble of Carrara. The master did not live to complete his work, which was continued by his disciples, the most distinguished of whom, Bonino da Campione, executed those fine *rilievi* representing the Passion of Our Lord, and also in white marble,—a gift from one of the Visconti,—which the reader will remember as forming the decoration of the high altar in the same church.

The death of this saint it is, then, that Titian has chosen for the subject of what all agree to declare his finest work. Painted for the high altar of SS. Giovanni and Paolo, in what may well be considered the best period of the master's life, this picture was early estimated at its true value, and the pain of death was subsequently decreed by the Venetian senate against any who should attempt to bereave their city of that treasure. Good cause for this edict was given by the community of St. John and St. Paul, since those fathers were on the point of concluding a sale of the picture, to which they had been tempted by the large sum of 18,000 scudi, when the senate stepped in with its veto, as aforesaid.

"Chì camanda, *ghe tagie* la strada."

says Boschini, in his Venetian dialect, that most charming of the tongues that make Italy all musical. Brethren and friends! would that even now the delicious sounds were in our ears:—

"Chì comanda, ghe tagie la strada,
Col dir, 'Lassela là! pena la vita.'" ||

A most significant injunction, and one the purport of which could scarcely be mistaken—a quality not always to be found in laws. This decree saved the picture, and although it was taken to Paris,—the grief and supplications of the inhabitants notwithstanding,—yet as among the first restorations demanded, was that of the Pietro Martire, so was it ultimately restored to its rightful possessors. In Northcote's "Life of Titian" is a description of this work, which has the merit of simplicity, and is very nearly accurate; the words are these:—

"In this composition the saint is represented larger than life, fallen on the ground, attacked by a soldier; he is mortally wounded in the head, and the agonies of death are in his face. His companion is flying, with looks that exhibit great terror. In the air are two or three little angels decending with the crown of martyrdom, and surrounded by a sudden blaze of glory, shedding a light over the landscape, which is most admirable. It is a woody country. In the foreground are several alder-trees, executed with such perfection as it is much easier to envy than to imitate. The fear in the friar's face, who is making his escape, is well expressed—it seems as if one heard him crying out for mercy. His action is rapid as that of one who is in extreme danger, and his friar's dress is exquisitely managed so as to show the proper development of the figure in swift motion. There is no example to drapery better disposed for effect. The face of St. Peter has the paleness usually attendant on the approach of death. He puts forth an arm and hand so well expressed that, as a good critic has said, Nature seems conquered by Art. The tall branching trees, with the flashing lights of the troubled sky, would seem to indicate that something terrible is passing below, even if it were not visible; and the distant Alps, discovered between the trees, impress the spectator with horror of the dreary and desolate spot (so fit for such a deed) on which the murder is perpetrated."

Dissenting from the critic, who speaks of Nature as the victor of Art,—since Art, though often seeking to elevate Nature, does not attempt to vanish,—we add the closing words of Northcote's description, wherein he does but express his own accord with the opinions of all whose voices are of moment:—

"This composition is the most celebrated of any Titian ever painted. I think it justly deserving of the name given to it,

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* Continued from page 39, vol. x.

† The order of the Dominicans (Prædicators) was founded at Toulouse, in 1215, by the Spaniard Dominicus de Guzman, who likewise took part in the establishment of the Inquisition, commanded about that time by Pope Innocent III., for the repression of heretics in general, and of the Albigenses in particular, throughout the realm of France. De Guzman was canonised by Pope Gregory IX. in 1233, twelve years after his death, which took place in 1221.

‡ The reader will remember him as so depicted by Giorgione in our own work by that master, now in the National Gallery.

§ Not St. Paulus Eremita, as say some of the Milanese guides.

|| Which may be rendered as follows:—

"The men who rule us barred the way,
Saying, 'Leave that alone! or die the death!'"

and by which it is universally known, 'The picture without a fault.' "[*]

A more spirited description will be found in the words below, wherein the author, first paying a tribute most justly due to Giorgione, and remarking that after his death Titian was left without a rival, proceeds to say:—"This great painter (Titian) began, of couse, like all Venetians, to paint directly from nature, without having previously dissected or drawn, nor was he sensible of this error of the Venetian School till, coming to Rome, and seeing the works of Michael Angelo, Raffaelle, and the antique, he, like a great genius, set about remedying his deficiency, and the perfection of this union of form and color is seen in his greatest work—Il Pietro Martire. This picture occupied the master eight years, and the eight years were well spent in such a production. The terrific gasping energy of the assassin who has cut down the monk; the awful prostration of the victim, wounded and imploring heaven; the flight of his companion, striding away in terror, with his dark mantle against a blue sky; the towering and waving trees, the entrance, as it were, to a dreadful forest; the embrowned tone of the whole picture with its dark azure and evening sky, the distant mountains below and splendid glory above contrasting with the gloomy horrors of the murder; its perfect, though not refined drawing, its sublime expression, dreadful light and shadow, and exquisite color, all united render this the most perfect picture in Italian Art."[†]

And all this is true: nay, more, and much more, might well be affirmed respecting the surpassing merits of this great work; yet, since Art has so much to offer, and life so little time wherein to consider it, I refrain from comment of my own, believing we shall all find more profit in the words of some few more among the efficient writers who have made this priceless production their theme. With these, then, we shall close the sojourn one feels to be making with the noble picture while listening to their discourse concerning it.

Kugler, in his "Handbook of Painting," speaking of the St. Peter Martyr, assumes, as a fact, that Titian's highest excellence is more frequently displayed in the delineation of figures in repose than in those in action: he adduces the Christ crowned with Thorns, in the Louvre, in support of his assertion. On this Sir Charles Eastlake observes—"It has not been thought necessary to notice every instance where the judgments of the author differ from received opinions; but it is impossible to suffer the above remarks on the Pietro Martire to pass without, at least, observing that the majority of critics have long placed this picture in the highest rank of excellence. The Christ crowned with Thorns is unsurpassed in color, but the Pietro Martire has been always considered as excellent in invention as in the great qualities which are peculiar to the painter. Having said thus much, it may be granted that the author's general remark respecting Titian's superior treatment of grave subjects appear to be well-founded, and instances of exaggerated action might undoubtedly be quoted. A certain imitation of Michael Angelo is to be recognized in Titian's works in the most vigorous period of his career; but this imitation seems to have been confined to qualities (such as contrast in action and grandeur of line) which were analagous to his own characteristic excellences. The friar escaping from the assassin, in the Pietro Martire, is as fine an example of the union of these qualities in form as is to be found in the works of any painter: other instances were, perhaps, less successful. For the rest, the taste was not permanent in Titian; he returned to that 'senatorial dignity,' which Reynolds has pointed out as one of his prominent qualities, and in this view the remark of the author, must be allowed its due weight."[‡]

Frederick Von der Hagen, whose "Briefe in die Heimath" is among the most useful of his pains-taking compatriots' many useful works, brings his testimony to the value of the picture in aid of all previously cited:—"Dieses Bild," he says, "wird überall für Tizians Meisterstück gehalten."[§] He adds a remark that might seem to require confirmation, and which the present writer has not seen elsewhere—"Die Engel oben in den Bäumen sind nach dem erwähnten antiken Bildwerk in der Bibliothek." "The angels hovering over the scene, and in the trees, are taken from the before-mentioned antique sculptures of the Library,"—that of St. Mark, Venice, namely, to which he had previously referred.

To the *Cristo della Moneta* (the Tribute-money) some slight allusion has already been made.[||] This picture, painted for Alfonso the First, Duke of Ferrara, is in the Royal Gallery of Dresden. It has given rise to much discussion, as to the extent of influence exercised on the manner of the master when painting it, by Albert Dürer: for these we refer the reader to the German and other commentators who have touched on the subject. One of their number[¶] disputing the fact, points to other causes—the still possible influence of Gentile Bellino among them—as accounting for that dissimilarity to the master's later manner remarked in this picture. "Be these things as they may," continues Förster, "the Tribute-money serves to exhibit the great master of the Venetian school on a second eminence, to the elevation of which no other had ever attained, and to which he did not himself again ascend."

Lanzi, alluding to the same work, and also referring to the supposed influence of Dürer,[**] says—"He worked at his Christ with such attention to delicacy that he surpassed even that master of minuteness [Albert Dürer], one might count the hairs on the head, and the pores of the skin, and yet the effect is not injured; for, while the pictures of Albert, by diminishing the size, diminish the value, Titian enhances and renders them more grand. Happily for the Arts, this, and the portrait of Barberigo, are the only works in the manner now under consideration that Titian ever executed after freeing himself from the school of his master."[††]

But, if there be diversity of opinion on the question thus mooted, there is but little as to the merit and beauty of the picture. Kugler calls it "the most finished and beautiful of Titian's early works;" "or rather," he proceeds to say, "one of his most beautiful works of any period, is Christ with the Tribute-money (*Christo della Moneta*), painted for the Duke of Ferrara, and now in Dresden. In the head of Christ everything combines to produce the noblest effect; the union of the flesh tints; the delicate handling of the beard and hair; the graceful lip; the liquid lustre of the eye; the mildness of the reproving glance. The contrast of the crafty Pharisee is admirable."[‡‡] It is true that another of the German critics, and one of no mean account—Ersnt Förster, namely—affirms the divinity to be wanting in this head of Christ: he adds, what is indeed to be lamented in but too many of our most valued treasures in Art, that the work has been much injured by restoration.

Few galleries are so rich in the works of Titian, as is that of Dresden, and were it but in reference to these, one feels constantly disposed to say with Dr. Waagen—"Du weisst dass mir der Aufenthalt in Dresden jedes Mal ein wahres Fest ist."[§§] The Ducal family of Ferrara, in prayer before the Virgin, has been already named; there is, besides, a work of great merit representing the Madonna, with the Divine child standing on her lap: St. John the Baptist forms part of the group, and before them is a young woman of the true Titianesque type. Her bright fair hair, scarcely restrained by its silken bands, falls in rich tresses on the beautiful neck. Over her graceful head, St. Jerome—her patron saint—extends his crucifix, as in the act of recommending her to the especial protection of the Virgin Mother. A second saintly protector—if I recollect rightly, St. Paul—has also accompanied the gentle suppliant, whose bent eyes, and the somewhat anxious expression of her mouth, would seem to imply—as, indeed, the figure also makes manifest—that no common occasion has brought her thither.

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[*] "Life of Titian," by James Northcote Esq., vol. i. p. 43. *et seq.*

[†] See "Painting and the Fine Arts," by B. R. Haydon and W. Hazlitt, p. 171, *et seq.*

[‡] Schools of Painting in Italy, vol. ii. p. 443.

[§] "This picture is universally considered to be Titian's master-piece." See "Briefe in die Heimath, aus Deutschland, der Schweitz und Italien." Breslau, 1818. Vol. ii. p. 163.

[||] See Photographic & Fine Art Journal for February.

[¶] Ernst Förster "Briefe über Malerei," whose words are as follows:—"Für diese hatte er, im benachbarten Mailand, ganz andre Mitstreiter, ja sein eigner Lehrer konnte ihn zu solchem Beginnen durch seine Werke herausgefordert haben."

[**] "Jedenfalls, zeigt es uns den Meister der Venezianischen Schule auf einer zweiten Höhe, die kein Andrer erreicht und auf die er sich selbst nicht wieder begben hat. E. Förster, *ut supra*."

[††] Lanzi, "History of Painting," as quoted by Northcote. "Life of Titian," vol. ii. p. 107.

[‡‡] Kugler's Handbook of Painting. part 2nd, p. 440.,

[§§] See "Kuntswerke und Künstler im Erzgebirge und in Franken," vol. i., letter 1.

A Venus, one of the three, all much admired by the German critics, is principally remarkable—as compared with other fine works of the master, of which this is undoubtedly a very fine one—for the peculiar character of the landscape without; it has all those many characteristics—comprehended without a word, but which many words would not suffice to enumerate—of a burning midsummer day. The hills are bathed in a glow of sunshine, dark and deep are the shadows cast by the trees midway, and you tell yourself it is beneath them that you would now be tempted to repose, if it were your lot to be travelling on the road to those hills. A youth, playing on a musical instrument, is seated at the feet of the Venus, but with his back turned towards her as well as to the spectator.

This picture is a replica of that in the Fitzwilliam Museum, Cambridge, where it is called the Princess Eboli and Philip the Second—an appellation that may have been determined in part by the guitar. The hand of the restorer—restorer!—is, unhappily, but too clearly manifest in the Fitzwilliam picture, more especially does it appear in the head of the Venus; that of the Cupid has suffered in like manner, although scarcely perhaps in equal degree.

That the churches and palaces of Venice should be rich in the works of Titian is what all will anticipate, and most of us know to our infinite advantage and delight. The mournful Entombment, in the Manfrini Palace, will at once recur to the reader as among the most impressive—perhaps, indeed, the best remembered of all. Even to those who have not seen Venice the work need scarcely be unknown, since the Entombment in the Louvre has more than equal merit. Or if, saddened by the heavy sorrow expressed so eloquently in this masterpiece, he desire relief in the contemplation of perfection in other forms, let him turn to the exquisite Three Ages, in the same palace; or let him take boat for the Academy—thrice blessed be the hour!—and in the glorious Assumption—or, for many, yet more effectual to the purpose, in the Presentation of the Virgin in the Temple—he will find matter fully worthy to occupy his thoughts, even though these have been elevated by long lingering before the great and heart-moving Entombment.

And now, pressing is the temptation to describe these wonders of Art, were it for no better reason than the delight one has in recalling their minutest details, never so effectually presented to the eyes of memory as when seeking, however ineffectually, to set forth their beauties and for the admiration and homage of others. But the desire must be resisted: neither may we do more than indicate St. John in the Wilderness, also in the Academy—but painted for the Church of Santa Maria Maggiore. That the Assumption of the Virgin—that too now in the Academy, as before mentioned—was formerly in the conventual Church of Santa Maria Gloriosa de' Frari, most of our readers will remember; nor will any who may have seen it forget the Madonna of the Pesaro Chapel, in that church, where the donors of the picture, all portraits, are kneeling before Our Lady, who has St. Peter and St. George beside her. All who are familiar with Venice will equally remember the little Church of San Nicoletto, which makes part of that magnificent convent of the Frari. For the high altar of this church Titian painted a picture, wherein is the martyrdom of St. Sebastian. The saint is a figure much extolled by many critics, for truth and fidelity to the life, but censured by others—Vasari among the number, but by him very gently—for the absence of ideal beauty. "The St. Sebastian having been copied from the life, without the slightest admixture of art," says Vasari, "nothing has been done for beauty in any part, trunk or limbs; all is as nature left it, so that it might seem to be a sort of cast from the life: it is, nevertheless, considered very fine and the figure of Our Lady, with the Divine child in her arms, is also accounted most beautiful."* Of this inestimable work—for such, notwithstanding that dissonance among the learned just alluded to, is the St. Nicolo generally allowed to be—the community consented, towards the close of the last century, to deprive their convent. Alas! that gold should have so much power, and that men's resolves should exhibit so little firmness; for many great ones of the earth had more than once desired to possess the treasure, but the monks had hitherto stood firm in their declaration that no price should ever buy it from them—yet for money was it ultimately sold, and in so much was the Republic—then triumphant, for this took place in the year 1773, or 4—in *so* much was she shorn of her glory. Let us suppose that unwonted pressure must have been exercised on the owners; or rather—and why forget the fact so long?—let us be certain that their sense of duty to the head of their church alone had power to prevail over every other consideration,—for the purchaser was no less sacred a personage than Pope Clement XIV., and the place of the exiled picture's destination—and remembering that circumstance, many would hesitate to say that of its banishment—was no other than the pontifical palace of the Vatican.

Here it was that the present writer first made its acquaintance—here that in subsequent visits the beauty of its many admirable parts seemed ever to become more beautiful, while such defects as more profoundly informed observers have discovered in the work, eluded, in almost every instance, the perceptions of this writer, although so much may be admitted as that the St. Sebastian is not an attractive portion of the picture, however fine. But even this would scarcely be granted by good judges; and the writer conscious to a weariness of the figure of San Sebastian, which meets you everywhere and in all galleries, has seen cause for attributing that amount of imperfection in the pleasure conveyed by the work to a prejudice in the beholder rather than to failure on the part of the master.

And here, in support of the last observation, let us add what an Italian once remarked to the writer, as regarding this very figure, "It justifies the eulogy of your countryman," he said; who declared that "the flesh of every other great painter is but paint, while that of Titian has a real circulation of blood under the skin." It was of Haydon the Roman was speaking, in whose "Treatise on Painting," the passage, not then known to the present writer, will be found.† Another Italian, speaking of the same figure, assures us that in this Martyrdom of St. Sebastian, Titian has taught us how the nude should be treated—"*Sfuggendo le masse degli scuri gagliardi e le ombre forti che giovano al rilievo ma diminuiscano la morbidezzo della carne.*"‡ Northcote, describing this picture, declares the figure of St. Sebastian to be that of "a most beautiful young man, heroically sustaining the extreme pains of approaching death;" he proceeds to describe the whole with a perspicuity that would render his Life of the master truly valuable, had he bestowed some portion of that quality on his arrangement of the excellent materials he has collected. But, woe the while, what confusion worse confounded have we here! Take with you the very largest measure of patience when you consult his pages—nay, press it down and heap it up, or the very largest shall prove insufficient. The work is otherwise a fair and good one; competent authorities have been consulted, and a large mass of useful matter has been collected industriously, from sources where it was most likely to to be found—Vasari and Ridolfi principally, perhaps, but others also have been consulted, and in sufficiency. The sole defect is that "most admired disorder" before alluded to; but for this we say again "take patience," and take enough.

Northcote's description of the St. Sebastian is as follows:—"On a bright cloud, illumined by the rays of the setting sun, is seated the Virgin, with the Divine child on her breast; before them are standing in most, devote attitudes, two handsome boys just emerging from childhood. A ruined edifice occupies the bottom of the picture, in which is seen the titular saint [St. Nicholas] absorbed in a pious ecstacy, and keeping his eyes fixed on the heavenly mother. * * * * * At the side of the Virgin is standing, with an air of modest dignity, St. Catherine, a woman of great beauty. The complexion is somewhat dark, the grand forms and contours, as opposed to the delicacy of the Virgin mother and the Magdalen, show her capable of enduring the most exquisite tortures of martyrdom. The figure of St. Peter assists wonderfully in giving harmony to the picture, to which the sober color of the dresses of St. Francis and St. Anthony contributes."

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* See "Lives of the Painters, Sculptors, and Architects." English edition. Vol. v. p. 388.

† See "Painting and the Fine Arts," p. 172; this is the reprint of articles written for the "Encyclopœdia Britannica," by Haydon—who, with some heresies, mingles valuable truth—and by Hazlitt, whose acquaintance with his subject is by no means so profound.

‡ See "Galleria de Quadri al Vaticano," p. 41.

St. Francis, if the recollection of the writer be correct bears a cross, and is represented as in ecstacy. St. Anthony of Padua has the lily; St. Ambrose is also present.

"But what is most wonderful of all," adds Northcote, "and where the flesh is executed most naturally, is in the figure of St. Sebastian. This figure alone would be sufficient to confute the old calumny of those who, allowing Titian the palm of coloring, deny him that of design."

"Perhaps," he continues, "the remark of some one else would be more reasonable, about his having united saints of different ages and countries, who never met while they lived. But besides such an anacronism would in part be justified by the will of him for whom the work is done, it is also lessened (?) by the skill of the painter, who makes a glory which collects round him all those who called to participate in it."

This last proposition is not very clearly argued, but it is rightly felt as regards the master, and that shall suffice us: in a note Northcotes further says, "It is proper to mention that Titian was much pleased with this performance, having written in large letters '*Titianus faciebat.*'" "Of this work," writes the annoymous author,[*] "being of supreme excellence, he was himself, quite enamoured, and contrived that it should be seen by all the world by means of a print taken of it." P. Gugliemo della Valle, in a note to an edition of Vasari prepared under his inspection at Sienna, says, "This stupendous picture, obtained by Clement XV., is to be seen in the pontifical gallery of the Quirinal,[†] and every one find in it that beauty with which Titian himself was so enchanted."[‡]

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[*] Of the writer so called, and not certainly known by any other name, we shall have more to say hereafter.

[†] It has been removed to the gallery of the Vatican, as aforesaid.

[‡] Life of Titian, vol. ii. p. 115, *et seq.*

From Hunt's Merchants Magazine.

PHOTOGRAPHIC COUNTERFEITING OF BANK NOTES.

SEROPYAN'S METHOD OF PREVENTION.

Having carefully examined Mr. Seropyan's patent for preventing the counterfeiting of bank notes, we cheerfully give place to the subjoined communication from a reliable source. The New Haven Bank, Elm City Bank in New Haven, and the Artizan's Bank in the city of New York, have adopted the new plan of the inventor. Dr. Porter, in his *Principles of Chemistry*, a text-books for schools and colleges, recently published by A. S. Barnes & Co., refers to Mr. Seropyan's patent, and after mature investigation, agrees with other scientific and practical chemists, in pronouncing it "an effectual means of protection against counterfeiting."

To the Editor of the Merchants' Magazine:

Dear Sir:—The attention of the financial world has of late been much directed to the subject of counterfeit bank notes, and the process which seems to challenge most scrutiny, and is truly becoming formidable, is that of photographic counterfeiting. The principles and laws of light and colors are now so well understood, and the ordinary operators in chemistry are so easily able to make exact copies of objects, that in the hands of dishonest men this knowledge and skill must excite the apprehension of the entire commercial world.

It is very well known that photographic counterfeiting has been and can be done. For example, not long since a skillful artist in Paris took a photographic copy of a bank note of large denomination, and gave notice to the bank that he should send it in on a given day. The officials of the bank of course closely scrutinized every note of the given amount, and supposed it had not been presented, till the artist appeared and selected from those taken, the copy he had made. Thus M. Agrado passed a photographic counterfeit upon some of the most experienced and competent judges of paper currency, and that, too, after forewarning that he should do so. The Bank of France has been extensively imposed upon in this way; and it has often been impossible, on the closest deliberate examination, to distinguish between the copy and the original. Now, if such judges, under such circumstances, are at the mercy of the counterfeiter, what must be expected in smaller establishments, where less caution is habitual? In short, what safety is there? What security or pledge has any banking institution that it is not flooding itself with indetectable counterfeits? Who shall distinguish the true from the false? The holder of the counterfeit stands at the counter by the side of the holder of the true original note, but who shall say which is to be redeemed? What can hinder any bank from suddenly finding itself responsible to the public for more than double its real circulation?

These things are not said to excite unnecessary alarm. But in view of experiments already made, and in view of the indubitable facts of science, too careful, thorough, and immediate attention cannot be given this subject. It will be too late to begin when business is bewildered by the utter uncertainty of paper money.

No one who keeps himself tolerably well informed upon the different branches of practical science can need to be reassured of the facility which photographic copying can be done. There are several processes, two or three of which may be referred to by way of illustration.

First. There is the Photo-Galvanographic process of engraving by Paul Pretsch, of Vienna. He proceeds to take a negative copy of the engraving on glass, and from that produces the intaglio or relievo electrotype plates from which he prints. Every one knows that such a perfect negative copy can be taken, and only a very slight knowledge of a few simple chemicals is requisite to make the proper transfer. A full account of Ptesch's process may be found in the *Photographic & Fine Art Journal* for 1856. Then there is the mode practiced by Mr. Robert McPherson, viz: Photo-Lithographing. He transfers his negative copy at once upon stone by another photographic process, from which the printing is done. Professor Ramsay, in speaking of this process before the British Association, in Glasgow, stated that "the above process modified had been employed with success to etch plates of steel or copper without the use of the burin." And in further explanation of it he remarked that "a negative on glass or waxed paper, is applied to the sensitive coating of bitumen, and exposed to the full rays of the sun" whereby of course a complete transfer of the copy is made without the loss of a single line or shade. For more full particulars upon this process see *Annual of Scientific Discovery* for 1856.

Now, with these tried and successful processes before us, what is to be done? The counterfeiter may very readily make himself acquainted with one or all of these processes. And then he has only to supply himself with a glass, a stone, and some bitumen, and two or three simple chemical ingredients, avail himself of the universal sunlight, and the work is accomplished. The bank note has so perfect a fac-simile that the best judges are deceived.

The question then naturally arises, whether no one has or can invent some protection against this formidable undermining of our paper currency. In view of this, chemists, supposing there was *no chemical contrast* between the red and black of the bank note, suggested the idea of printing the original bill in these two colors, in order to prevent the taking of a negative copy. But recent experiments have conclusively demonstrated that in those colors there *is* a chemical contrast, and therefore a copy of the note printed in *red* can be taken, and of course that *supposed* protection becomes no protection at all.

But while all such efforts have heretofore proved ineffectual, there has appeared, of late, a process that bids fair to accomplish all that is desired. I refer to the Seropyan Patent. Much has been said and written concerning this process, and full scientific explanations of it have been given elsewhere, which are accessible to all readers.

Proceeding upon the basis of the chemical contrast, in respect to which preceding inventors and experimenters failed, Mr. Seropyan has succeeded in a plan of making bank notes, whose colors have *not* a chemical contrast, and cannot, therefore, be photographed. Now, it may seem a bold assertion, that the notes of this patent cannot be counterfeited. But let us consider for a moment the basis on which such a statement is made. His plan, after being matured by a most patient, thorough, and extensive series of experiments, wherein all conceivable opposite tests were used, was submitted to eminent professors of Yale College and New York. Such leaders in science as Silliman, Dana, and Torrey, have given their attention to the subject, and have publicly asserted their belief, that it is a complete protection against all counterfeiting in which chemistry is involved. They distinctly affirmed, that "it is the best actual, if not the best possible protection." Certainly, no higher authority upon a scientific question can be desired or obtained; and it is quite unnecessary to say that these gentlemen are not in the habit of presenting to the public idle theories or rash conjectures.

Moreover, attempts to counterfeit Seropyan's notes have repeatedly been made, and have in every instance utterly failed. So that, although they have been before the public some time, no copy of them has been taken, and in fact, as all photographic copying depends upon the chemical contrast ordinarily existing in colors, his notes cannot be copied, inasmuch as they are *without such contrast*. And of course, so long as *no distinct negative copy* of them can be taken, it *is impossible to counterfeit* them by any of the processes already referred to in this article. And to prove that this is *practically* true, read the following letter from Mr. J. A. Whipple, an eminent photographic artist of Boston, to Prof. B. Silliman, Jr.:—

BOSTON, July 21st, 1856.

PROF. B. SILLIMAN, JR.—*Dear Sir:*—Yours of July 9th came duly to hand, with the bank notes printed by Mr. Seropyan's patent process, of which you desired to have protographic copies made. Our attempts thus far have been a complete failure, as you will see by the results I send you, *and it is my opinion that it is impossible to copy them by any photographic process now known.*

Yours, truly,
JOHN. A. WHIPPLE.

At the same time, these notes present a very pleasant visual contrast, and are in no way inferior to the best heretofore made. So that while this patent becomes a protection against counterfeiting, it furnishes a currency in every other respect equal, if not superior, to that already existing.

Besides the processes we have spoken of above, might be mentioned what is called the Anastatic process, in which a copy is transferred upon a zinc plate, from which printing is done in the same manner as from a lithographic transfer, or from it can be made an electrotype plate for the same purpose.

And again, there is a process of transferring from the bill directly upon the stone, and printing from that. Now, against these also, the Seropyan patent furnishes a complete protection.

So that all the kindred processes of photography by which the bank-note system is endangered, are individually and collectively met my Seropyan's patent. Other chemists who had given attention to the subject, while they may have succeeded in some one particular, failed in making such combination as should cover the entire ground. While fortifying one part, another was left exposed; but Mr. Seropyan, in the most simple and beautiful manner, has so thoroughly and yet so comprehensively matured his plan, that while it is entirely successful in the particular, it is broad and far-reaching enough to embrace the whole difficulty. Herein his plan differs from all others; he has achieved a whole where others may have only succeeded in a part.

If these things are so, and that they are abundant proof is had, certainly it is a matter of vital concern to our banking institutions. That our paper currency is in iminent danger by protographic counterfeiting and other chemical means, is most evident. Who knows, at this very hour, what multitudes of copies the benign rays of the sun may be furnishing to the hands of knaves? So subtle, and yet so easy is the course of this dishonesty, that every holder of paper money may well feel his suspicion aroused.

It is, however, a favorable omen, that so much attention is even now given to the method of preventing counterfeits; but the urgency of the matter, the absolute necessity of arousing the financial world to a sense of its condition, cannot be overstated. A protection is offered in the Seropyan patent, and truly it would be little short of madness to allow anything which so simply promises relief, to remain a day untested.

If it succeeds, as it seems certain to, photographic counterfeiters will find their "occupation gone," and the people will fold up their notes with a conscious security and trust.

Yours, truly, FINANCIER.

From the London Art-Journal.

THE EARLY FLEMISH PAINTERS.*

No school of art has ever attained to such a degree of excellence as the early Flemish school, and yet remained in obscurity. The fame of the Renaissance turned all eyes to Italy, and her *prestige* in art eclipsed for centuries the rising claims of the schools of all other nations. Lightly, however, as the Southern schools may have esteemed that of Flanders, Vasari does ample justice to the success of the Northern painters. When we think of the early Flemish school, we think only of the Van Eycks; to us they constitute the early school. But they were preceded by one or two others worthy of mention. These were attached to the Court of Philip the Hardy, Duke of Burgundy, being entertained as "*pointres et valets-de-chambre.*" It is of little interest to inquire relative to their duties in the latter department of their two-fold capacity; but we learn that as "*pointres*," their duties were multifarious—such as designing and ornamenting banners and pennons, and painting heraldic equipments; but the works which assign them places among the painters of their school are their efforts in religious art, of which some altar pieces survive. The names of the "valet" painters that have come down to us are Jean Malouel, Melchior Brœderlain, and Jean de Hassett. Of the works of the first and last, little remains to testify of their quality; but in the Museum of Dijon there is a remarkable production by Brœderlain, consisting of several compartments, in which are represented the Annunciation, the Visitation, the Presentation, and the Flight into Egypt. The book before us contains an outline engraving of this work, which is characterized by the executive infirmities of its time—the last years of the fourteenth century. The artists and valets above mentioned, with a few others of minor note, were the predecessors of the Van Eycks.

The Van Eyck family had its origin in the Duchy of Limburg, on the banks of the Meuse; but such was the obscurity of the family, that there exists no record of it before it became famous by the works of the brothers Hubert and John. By some writers it is supposed that a certain Joes Van Eyck, a member of the Guild of Painters of Ghent, was the father of the Van Eycks. Very little of the life of Hubert Van Eyck is known previously to his admission to the Guild of Painters of Ghent; but subsequently to that it is ascertained that he painted more than one picture in *tempera*, and perfected the education of his brother John; and the discovery attributed to the latter was effected, according to Vasari and Van Mander, in 1410, when John was yet in his youth, and Hubert was in the vigor of manhood. In the respective associations and manner of life of the brothers there was a remarkable difference. Hubert was independent of courtly patronage—there is no mention of his having been numbered among the valets of any reigning seigneur; while, on the contrary, John was the creature of courtly favor. The value of the discovery of oil painting seems to have been at once understood by the good Flemish burghers, and they seem also to have comprehended with equal readiness, the injury accruing to simple oil and color by the introduction of experimental media. They in their days, as we in ours, had seen works of art ruined by ignorance and caprice. Reynolds exhausted the possible and impossible arcana of vehicles; and the results are open to us—the surfaces of some of his best works are in rags. Of this fact, "Mrs. Siddons as the Tragic Muse" is a sad evidence; but yet, even of late years, the search for the lost medium of the old masters has been again revived, but only again to subside in disappointment. We discover only too late the value of simplicity in all things. Reynolds was bewildered by belief in some enchanted compound, as were also his followers: this was his and their weakness. Only nine years after the discovery of oil as a vehicle for color, the sagacious burghers of Ghent, in contracting for the execution of certain works of art, prohibited the use of anything but oil. "Wilhelm Van Axpoile," says the text of the book under notice, "and John Martæns, licensed painters (*vrie schilders*) were employed, in 1419, '*to paint in good oil colors, unmixed with any corrosive substance*, several important pieces for the Town Hall, John Van Coudenburg and Marc Van Gestele to adorn, in 1430, the church of Roslede with four great prophets 'à vif,' with 'The Death of Our Lady,' 'Our Saviour in the Sun's Rays,' 'The Last Judgment,' and 'The Baptism of Christ,' all which aforesaid pictures the said John and Marc were bound to finish for eleven livres." It may be assumed that in those days painters had been endeavoring to improve upon oil as a vehicle, and had failed: hence the terms of the contract. If these works still exist, their condition would at once be an evidence for or against the simple medium. To Hubert Van Eyck was confided by Jodocus Vydts, a wealthy citizen of Ghent, the execution of an altar-piece for a chapel founded by him for the reception of the mortal remains of himself and family. When Hubert received the commission for this really great work, he was formally admitted to the honors and the privileges of the fraternity of the Guild of Painters. Hubert, however, died before he completed this work: the upper portion only is by him, the rest having been painted by his brother John. He died at Ghent, in 1426, and was buried in a crypt of the chapel, we believe, which he was decorating. The epitaph inscribed upon his tomb is remarkable, it runs thus: "Take warning by me ye who walk over me; I was as you are, but am now buried dead beneath you. Thus it appears that neither art nor medicine availed me. Art, honor, wisdom, power, affluence, are spared not when death arrives. I was called Hubert Van Eyck. I am now food for worms. Formerly known and highly honored in painting, all this was shortly after turned to nothing. It was in the year of our Lord, one thousand four hundred and twenty-six, on the 18th day of September, that I rendered up my soul to God in suffering. Pray God for me, ye who love art, that I may attain to his sight. Flee sin; turn to the best (objects), for you must follow me at last." As a memorial of the living man, the right arm with which he had so successfully employed the brush, having been severed from the body, was suspended in a casket above the portal of St. Bavon, where it still remained in the 16th century. It is supposed that John Van Eyck was born between the years 1382 and 1386, at Maaseyck, where his brother Hubert was his instructor, from whom also he acquired a knowledge of drawing, painting, and chemistry. In considering the probabilities in relation with the means employed by the Van Eycks, Vasari theorises at some length on the probable causes of their successes, but especially in reference to John Van Eyck, who is considered the greater genius. But to quote again from the book before us—how far was John Van Eyck the discoverer of these improvements, and what share had Hubert in them? The desiderated means of producing pictures in such materials as should withstand the changes of such a climate as that of the Netherlands, was probably an early subject of study with Hubert Van Eyck. The question was agitated in Germany and Flanders long before it became a matter of interest in Italy. This can be readily understood from the perfect preservation of very early works of art in Italy. It would appear that those writers who assign to John Van Eyck the employment of oil as a medium in fine art, have formed their conclusions on unsatisfactory evidence, for assuming the earliest employment of oil in fine art to have taken place in 1410, we find at this time Hubert Van Eyck with an established reputation as a painter, while John, not more than 19 years of age, and perhaps only 15, must have yet been a pupil of his brother. It was not until 1420 that fame connected John Van Eyck with the discovery of oil painting: it was in that year, and not before, that he was present at an assemblage of painters at Antwerp, where he exhibited in triumph, a picture of the Saviour, on the color and character of which were pronounced the most lavish encomiums. It is probable that ten years had sufficed for a perfect knowledge of the new method of working, and that as his brother's practice was known to him, the honors of the discovery were awarded to him. In the works of the elder brother his superiority is manifest, and it was not until the decease of Hubert that John was regarded as the most eminent of his craft. This was the conviction of John himself, as is evidenced by an inscription on "The Mystic Lamb," the work commenced at Ghent by Hubert, and finished by him. The work respectively of the brothers presents a contrast unfavorable to the younger. "The Mystic Lamb" was completed in 1432, six years after the death of Hubert: it was finished at Bruges, and as the panels were perfected, they were sent, it may be supposed, to Ghent. The panels of this work are now separated, some are yet at Ghent, the rest at Berlin. It is to be regretted that the results of study so profitable, and the fruits of a mind so noble as that of Hubert Van Eyck, should be so inconsiderable—"The Mystic Lamb" being the only remnant of his work. In its finished form, this altar-piece merited the great and lasting admiration which it excited; it formed not only in itself a splendid harmony, but having been executed for the place in which it stood, it harmonized with all around it. Chapels and churches were then furnished very differently from what they are now, or were some time earlier. The walls were covered with tapestries and stuffs, and enriched with votive pictures and costly offerings to the patron saints. Philip the Good, Duke of Burgundy, was the friend of John Van Eyck, who was treated with the highest consideration by the duke, insomuch that he served him not only as his principal painter, but also in the capacity of ambassador on missions of confidence and importance. His death took place at Bruges, in 1440–41. The powers of the elder Van Eyck are thus very fittingly described in the book before us: "Hubert Van Eyck was sacrificed for centuries to the fame which John Van Eyck succeeded in engrossing by final improvements in the oil medium and varnishes. No neglect was more unjust than this, for Hubert transcended in genius John Van Eyck, and every other painter of the Netherlands. His grand characteristic, as chief of the Flemish school, was serenity and nobleness of expression: his great quality was color, but he failed in idealism. The gravity and pensiveness which marked his saints were not in every instance coupled with a sentiment of holiness and that elevated type which Scripture would impress; and, though he never proved himself a trivial or a vulgar painter, his mind was not above some weakening conceits. Had he possessed the entire gift of simplicity, he would not have laden the broad and sweeping folds of his drapery with the superfluous ornaments which profusely cover them: with these exceptions, nothing is wanting in the pictures of Hubert Van Eyck. Few men of his time in Italy, none in the Netherlands, have proved themselves as perfect as he was in anatomy and in the perspective of the human frame; but that in which he excelled was, as has been already said, color."

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* "The Early Plemish Painters; Notices of their Lives and Works." By J. A. Crowe and G. B. Cavalcaselle. Published by J. Murray, London.

The book contains a curious history of "The Mystic Lamb," with some account of the influence exercised by the work upon contemporary schools. The pictures which are attributed to Hubert Van Eyck neither support that attribution by any approach to the quality of the panels of "The Mystic Lamb," which were finished by him, nor can they be traced to his hand by any pedigree of proprietorship. It is probable that any works executed by him may have been destroyed by the iconoclasts of 1566, or in those military forays to which the cities of the Netherlands were so long exposed.

The works of John have survived the calamities which have, from time to time, devastated the Low Countries. It is remarked that the quality of his work declines in proportion to the remoteness of its date from the lifetime of his brother—an evidence strongly in favor of the superior intellect and power of Hubert. The picture in our National Gallery, absurdly called "A New Married Couple," we have long regarded as presenting portraits of John Van Eyck and his wife, notwithstanding the professed dissimilarity of the features from those of the portrait in that portion of the Ghent picture which is at Berlin.

The successors of the Van Eycks were Cristus, Van der Meire, Van der Goes, Justus of Ghent, Roger Van der Weyden, Antonella da Messina, Hans Memling, &c.; but the Van Eycks and their works are of paramount importance, and we feel that as we might have justly extended our notice of them far beyond the limits we assign it, we could in nowise do justice to painters whose names are more or less illustrious in the annals of art by a simple record of dates and titles.

From the Liverpool Photographic Journal.

PHOTOGRAPHIC ENGRAVING.

The problem that M. Poitevin considers that he has successfully solved is, to produce by the action of light, and without the intervention of biting in by acid, or the work of the graver, the reliefs and depths that can be transformed into plates, either for copper plate or the ordinary press printing, for rollers for printing calicoes or stuffs, or matrices for stamping cards, &c. He explains: "I pour upon some surface, glass for example, an uniform layer of solution of gelatine. The thickness of the coating ought to vary according to the extent of the relief that is desired to be obtained: I either suffer it to dry spontaneously or dry it in a stove; when dry, I plunge it into a concentrated solution of bichromate of potass. After a few minutes immersion, I wash quickly in water, and leave it to dry in the dark. The plate thus prepared may be placed in opposition to a negative, or in a camera, if we desire to produce natural objects; the time of exposure varies according to light and the thickness of coating. After exposure I wash again: all the parts which have not been under the action of the light become moistened and swell up, and produce sensible reliefs upon the surface of the plate, whilst the portions affected by light are hardly wetted, and therefore are not changed; consequently the reliefs answer to the blacks, and the hollows to the whites. I then take upon this gelatine proof, thus raised and depressed, a counter proof in plaster, or any other susceptible medium, so that I can produce a metallic plate from it by any of the well known aids of galvanic electricity."

From the London Art-Journal.

PHOTOGRAPHIC EXHIBITION.

The Photographic Society has opened its fourth Annual Exhibition; and it is a thing to see, and to talk of after it has been seen. The sun has been made to work after an admirable style, and to tell us many remarkable truths. There we find certain chemical ingredients spread upon paper, developing, under solar influence, into artistic studies,—into regions of cloud-land,—and into water, trees, and rocks. We have wonderful light and shadow, and we can but marvel at the beautiful gradations of tone which this etherial painter has produced. We rejoice in the progress of this delightful Art, and we perceive that the photographer has a power at his command, which will, if tempered with due care, produce yet greater wonders. There are many short-comings here, and in the friendliest spirit we call attention to them, hoping that they may cease to appear in the next Exhibition. Any man can now take a camera-obscura, and he can, with but little trouble, learn to cover a glass plate with iodized collodion, render it sensitive, and place it in his dark box. He may obtain an image, or images, of external nature; but it does not follow that he will secure a picture. There are many photographs in this Exhibition which are anything but well-chosen subjects, and which have been obtained under badly-selected aspects. There are another class which must be regarded as only accidentally good. We say accidentally good because we see a great want of uniformity in the productions from the same photographer. We think we could point to some pictures, which are the picked result of some twenty trials upon the same object. This should not be; nor need it be if the photographer will patiently study the physics and the chemistry of the agents with which he works. There are many charming pictures, showing peculiar atmospheric effects. We look at those with great pleasure, but with some doubt. It would be most instructive if the photographer would give a clear description of the *true atmospheric effect* which produced the *photographic effects* to which we refer. Beautiful as are some of the skies, with their heavy and their illumined clouds—pleasing as some of the mist-like valleys, and the vapor-capped mountains,—we desire to be assured that the photograph is a true representation of the natural condition of the air and earth at the time the photograph was taken. We cease to value a photographic picture if it is true. Are the fleecy clouds on the blue empyrean faithfully transferred to the sensitive tablet? Are we not deceived? Did not dull masses of rain-cloud float over the blue of heaven? Were not the heavy cumuli colored with the golden and the rosy rays of morning, or evening, when those pictures were taken? Was not nature very bright when the photograph indicates obscurity? Did not a glorious sun flood those hills with yellow light which looks so poetically obscure?

We know this to be the case with some of the photographs: may it not be more commonly the case than is generally imagined? Again, much has been said about the fading of photographs. It is a sad thing to see so many pictures in this Exhibition which must of necessity fade. This is the more lamentable since we know that a little more care would have rendered them quite permanent. There is no mistake upon this point. The presence of sulphur-salts in the paper is evident, and they are only to be secured now by thoroughly washing and remounting them.

The committee having charge of the Exhibition would do wisely to reject such photographs as these, for it is most damaging to the Art to find its productions fading out like a shadow. With the Photographic Exhibition it is not necessary to speak of individual works as we would of the productions of the painters. The cases are not parallel: the painter employs, or should employ, eye and hand governed by a presiding mind, the photographer uses a machine, and requires a little judgment. The artist works from within to that which is without; the photographer employs external agents to do his bidding. A few alone require especial notice. Mr. Rejlander comes with a new and extensive series of compositions, many of them being remarkably clever. We feel, however, in looking at productions of this class, that we are looking at portraits of actors—excellent in their way, but still actors. "Grief and Sorrow," "Dont cry Mamma," do not impress us with any feelings of sympathy from this want of reality. Many of these studies of Mr. Rejlander are excellent; but they cannot be regarded as works of Art, and, indeed, we should be sorry to see such productions taking place amongst us as works of Art. Mr. Fenton has, as usual, many very beautilandscapes and truth-telling pictures of time humored piles. Mr. Cundall's portraits of "Crimean Heroes" are a fine and interesting series of portraits; and the portraits of living celebrities—George Cruikshank and Robson, Professor Owen and Bell, Samuel Warren, Rowland Hill, and others, will command attention. Mr. C. T. Thompson's copies of prints and drawings, Dr. Diamond's Portraits of the Insane, Mr. Robertson's Views of Malta, Mr. Backhouse's Swiss Scenes, Dr. Braun's Views of

Rome, Rev. Mr. Holden's Old Buildings, are especially commendable for their respective excellencies. Mr. De la Motte has been very happy in his Oxford Scenes. Mr. Rosling has produced capital pictures, with more force than usual. Mr. F. Bedford, Mr. Llewellyn, Mr. Gastineau, Dr. Percy, Mr. Spiller, and numerous other well-known "children of the sun," have been successful in catching some of the beautiful effects of illumination which give a poetry to nature.

MAYALL'S IVORY PHOTOGRAPHS.

The want of a tablet for photographic pictures, which should be, at least, equally as absorbent as paper, and free from those inequalities and impurities which are such constant sources of annoyance to the photographer, has long been felt. Mr. Mayall appears to have succeeded in producing a surface possessing all the required qualities—perfect whiteness, uniformity of absorption, and chemical purity. This well-known photographic artist has very properly used the term ivory to express the character of the surface upon which he now produces his pictures. Except ivory itself, we do not think a more beautiful medium could be produced. It appears to be composed of barytes and albumen; and this, when solid, is well rubbed down and polished. The photographic portraits which are printed upon this surface are in themselves remarkably fine productions. It is, however, the purpose of Mr. Mayall that all this class of picture should be finished by the hand of the artist. We have examined several portraits, which possess the highest degree of finish—being, indeed, in scarcely any respect inferior to ivory miniatures of the highest class. These are produced at one-fifth the cost of the work of the miniature-painter—the sun, by one impulse, works in all the beautiful and minute details, so that a wash of transparent color from the artist's hands is all that is required to produce these truly beautiful pictures. Beyond these points of excellence we were much pleased with the artistic and picturesque arrangement of Mr. Mayall's figures, each one of which was evidently a careful study. In the place of the cold and formal daguerreotype portrait which used to perplex us, we may now possess portraits of our friends which are truly artistic productions, pleasing in whatever light they may be viewed, and truthful beyond the artist's power.

From the London Art Journal.

MR. ROBERT RONALD McIAN DEAD.

This excellent and estimable artist died at his residence, in Hampstead, on the 13th of December, at the age of fifty-four years; and he was interred at the cemetery, Highgate, on the 23rd of that month, according to the ritual of the Church of England. He was a true Scottish Highlander, one of the ancient and renowned race of the McIans or Macdonalds, of Glenco; and he loved, with a hearty and manly affection, the solitary home of his ancestors, whose persecutions he felt as a personable grievance two centuries after they occurred. The earlier years of McIan's life were passed upon the stage; and he obtained high repute as an actor of parts associated with his native country, especially as the Dougal Creature in "Rob Roy." About fifteen or eighteen years ago, however, he quitted the profession, and adopted that of Art, in which he arrived at considerable excellence, applying himself with the indominatable energy that was the leading features in his character. A writer in the *Literary Gazette* thus speaks of his pictures:—"The results were visible in his fine pictures of 'The Battle of Colloden,' an of 'An Encounter in Upper Canada,' in which a party of the clan Fraser made a gallant stand against a greatly superior force of French and American Indians. His picture of 'The Coronach' will also be fresh in the memory of many of our readers. His pencil never seemed so much at home as in painting scenes of savage life, or of violent conflict. There was no posture-making of Child's play in his battle pieces. It was all genuine work You felt that every shot told, and every stroke left its mark. Mr. McIan was a warm-hearted, honorable man, and highly esteemed by all who knew him. Both as actor and painter, he was held in respect by his brethren, for he pursued both arts with enthusiasm, and with elevated aims. His friends mourn the loss to their circle of a kind and manly heart, a gallant spirit, and an independent mind; and the English school of Art has lost a devotee, who, in his own particular department, gave promise of adding to its renown. Mr. McIan leaves a widow, the able mistress of the London School of Design, herself well known by her admirable pictures, of which, unfortunately, the public has of late years seen too few."

To these remarks we might add much; but we perfer to occupy our space with the following tribute to his memory from the pen of one of his many friends, Mrs. S. C. Hall, by whom his friendship was largely estimated and valued:—

A MEMORY OF THE LATE R. R. MC IAN.

While we write the bells are ringing the old year out!—the year which commenced as a giant to run its course, and is now departing amid the damps and dreariness of a dim winter's night, while rejoicing bells are loudly calling on their fellows from steeple to steeple, after the world's fashion, to spurn the old and triumph with the new. Pass away old year! you take much with you we have loved and cherished—to our grief, but to the deliverance and exceeding joy of those we loved. Our last "brother" whom you called "home" was a true, cordial, earnest man, who would rail at an enemy openly, and shield the honor of a friend with his life. It is impossible to gather rapidly the memories that extend over fifteen years; but the past is pleasant to recall; and it was so ordered that, deeply as we regret his departure, to *him* it was an act of mercy. For more than two years the frame of the Highland painter wrestled with an illness that would have vanquished an ordinary man in as many months; the spirit of life beat warmly in his pulses, and at times so triumphantly that his medical attendants hoped he might yet regain all he had lost; but the palpitating hope, the desolating fear, have settled into the stern reality:—on the 23rd of December the mortal part of Robert Ronald McIan found its last resting-place in the cemetry at Highgate. It seems but yesterday when we first made the acquaintance of the painter and his painter-wife--two who went hand, and heart with heart, together through the world, two in one—one in the same pursuit, one in truth and faithfulness, in love and friendship, one in life, and all but one in death—for their friends feared that Mrs. McIan's devotion to her husband would have brought her to a premature grave before *his* time for departure arrived.

Our memory goes back to a time when the theatre rang with well-merited applause at McIan's delineation of particular class of character, more particularly of "Dougal," in Rob Roy;"—the actor so identified himself with the wild Highlander that a great tragedian is said to have directed that no weapon should be placed within McIan's reach during his performance of the "Cataran," for that he was so "terribly in earnest" as not to be master of himself. It was a singular transition from the brightness and glare, the excitement and exhilaration of the foot-lights to the calm and quiet, the seclusion and repose, the "inner life" of the artists's studio; but though McIan quitted the stage, his sympathies remained with his old profession—he took a lively interest in theatrical affairs, and was ever ready to help a brother of the buskin. His mind was essentially dramatic, and unconsciously he "dramatised" with equal power on the canvas and in the social circle; his portraitures of character, his developments of Scottish national scenes and circumstances were amongst his most successful pictures, and there was always some touching and delicate episode, which told the story with eloquent power and pathos. Those who have heard him sing "Donald Caird," or "We are na fou'," can never forget the inimitable reading he gave to both Burns and Scott. On one occasion, while a guest—as he often was, and ever a welcome one—at our house, he so perfectly acted the passage—

"We are na fou'
We're not that fou'
But just a drapie in our ee,"

that an old servant, thinking the gentleman quite unfit to remain in society, wispered to his master, with a glance towards Mr. McIan, "If he should go for a cab?" When in health and spirits he was a charming companion, his memory well stored and ready, and his keen appreciation of the beautiful, finding words in enthusiastic language, created an interest which a coolor or calmer person could never achieve;—he talked pictures even faster than he painted them. He was too rapid in his judgment, too often suffered his heart to run away with his head, not to have been frequently mistaken in his estimate of personal character; but it was difficult to make him relinquish what he had once adopted, and even when deceived, the kindness of his heart permitted him to be deceived again; and, if his prejudices were strong, his affections were stronger. There are few greater treats in the world than to witness the zeal of a friend in a friend's cause, and, however hurt McIan might have been at times, at his pictures being "badly hung" on the crowded walls of the Royal Academy it was delightful to see him forgetting it, even on the "first day," in the enjoyment he experienced at a great "success;" and to observed how he dragged up one critic after another to see some "marvellous bit of nature," or "wonderful effect" (never his own), which, but for his zeal, might have failed to attract notice. At such moments his eyes would flash like lightning, and, if his earnestness induced smiles, it also called forth sympathies; people were sure to be the better for his good word, for it was spoken to the world before the world, and not wispered in a corner. It is some years since we journeyed through the Highlands together, and enjoyed with him their matchless scenery; the heather grew in his heart, and there was no music he loved so well as the bagpipe on the wild hill-side. There are people who would open their eyes in wide astonishment if you assured them that all his experience of the foot-lights had not chilled an atom of McIan's love of nature; that though he enjoyed deer-stalking, and has lived weeks amongst the hills in the "shooting season," he would shed tears over a sick dog; indeed, his tenderness towards beast and bird was the tenderness of a girl: this may not be considered "consistent" with his hunting and shooting, but we believe no Highland gentleman could withstand the chance of hooking a salmon or shooting a deer—certainly our friend never passed a river without peering and "speering" as to the chance of finding a salmon within its depths, and he was just as keen in his inquiries after the deer and blackcock. He seemed to us to know every inch of the Highlands; he accompanied us both by daylight and moonlight through the "Pass of Glencoe"—through the wilds of Arasaig—round and over the well-known lakes, and to the renowned islands of Staffa and Iona—paused and pondered and conjectured with us, beside Rob Roy's grave, and listened to the rush of the waters and the sough of the wind in the island burying-ground of the Macnabs—where the last grave has been made, for the clan has sought its home in the new world. How we enjoyed Blair-Athol, and revelled in the pass of Killiecrankie! McIan's ready and rapid pencil caught every passing scene, and transferred it to his sketch-book; and then, in the mountain inns, he would tell us stories and sing us songs, all in keeping with the time and place. We shall never forget the spirit with which he poured forth, from the summit of the monument in Glenfinnan, his friend Bennoch's song of "The Old Highland Gentleman," or how eloquently he described *there* the march, in costume, of the clans to meet their prince. It seems almost impossible that high-beating heart, so warm and true and earnest, should have ceased to palpitate. The loss of so many of his dear and loved friends—those noble Highland officers who fell in the Crimea—affected him greatly; his friendships were wound about his heart—they could not change; his friends' sorrow was his sorrow; and he mourned the loss of those gallant gentlemen as if they had been his brothers. These losses worked upon his excitable temperament in a way which more evenly balanced natures would find it difficult to understand; his illness came on gradually but surely throughout, and especially during the last few months. He was keenly alive to the watchful tenderness of his loved and loving wife; who, before and after her daily duties at the Female School of Design, was blessed with strength to watch him day and night; her presence became more and more his light, his joy, his life, and nothing could exceed his gratitude to her. His deep and earnest affections remained in full activity to the last,—they were the strongest elements of his nature.

From the Liverpool Photographic Journal.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The first meeting of the fifth session was held at the Royal Institution, Colquitt street, on Tuesday evening, January 6th. Owing to a meeting having been announced for the 23d, the third Tuesday in the month, there was but a slender attendance, the majority of the members being under the impression that that meeting had rendered the present one unnecessary.

C. **Bell**, Esq., one of the vice-presidents, who occupied the chair, made some observations, in opening the proceedings, as to the desirability of more attention being paid in Liverpool to the study of optics in connection with photography. He thought they should endeavor to persuade some of the opticians in the town to take a more active part with them; for he was persuaded that a great deal had yet to be done with regard to the lenses of cameras. He had brought with him to the meeting a small camera with two lenses, which he had got Mr. Chadburn to grind for him. They were simple Meniscus lenses, of rock crystal. For a stereoscopic camera he thought they were the most convenient and effective he had ever seen. In illustration of his remarks, Mr. Bell exhibited a picture taken with this camera. It was quite stereoscopic, and as good a result as could be expected in weather such as we have recently had. Lenses of this description he explained were much quicker in action than glass lenses. The picture was exposed three or four seconds. He also explained an invention by Mr. Long, by which he adapted his plate-box to his camera, enabling him to carry a dozen dry collodion or albumen plates in a box, which he hinged at the back of the camera, with a simple India-rubber band round the bag. There were sleeve-holes, enabling him to open the box backwarks, and take out the plates without difficulty.

Mr. **Forrest**, the treasurer, stated that Mr. Atkinson was making a stereoscopic camera upon the principle of Mr. Berry's large camera, exhibited before the society in July last, and which was found to be admirably adapted for the purpose of a stereoscopic camera.

Mr. **Keith**, the secretary, said he would endeavor to borrow one for exhibition at the next meeting of the society (on the 23d inst.)

The chairman, recalling the attention of members to the subject of lenses, said they must, after all, look more to the opticians. They did not pay sufficient attention to the simplicity of lenses. It was, no doubt, to the interest of the optician to sell as many of his high-priced lenses as possible, and he would not make the low-priced ones until pushed. He thought every photographer would have a stereoscopic camera if the great drawback of expense was removed. The cost of the lenses in the small camera he had produced, was very much less than those ordinarily used. The *foci* were the same; but if not they could be easily adjusted by the slide.

Mr. **Forrest** stated that, with the view of bringing forward practical results, the council had appointed a committee to make experiments with the three leading dry processes at present before the public—the gelatine, the dextrine, and the oxymel. It was intended to bring the results before the society, in order that members might arrive at a conclusion as to which was the best in point of manipulation and certainty. The weather had been very much against them lately, and the illness of their respected vice-president, Mr. Corey, had prevented him from performing his part of this duty. He (Mr. Forrest) fully hoped, however, that the experiments would be ready to be submitted at the meeting on the 23d.

Mr. **Keith** read a circular, a copy of which has been advertised in this journal, announcing that a patent had been taken out for producing photographic pictures upon enamelled metal *tablets*, papier maché, and other substances.

Mr. Forrest thught the chairman would recollect some photographic specimens on sheet iron, japanned, from America, being laid before the society.

The Rev. Mr. Banner: And others prepared on leather.

Mr. Keith: I have seen others in London on porcelain, and I have myself taken portraits on porcelain.

Mr. R. Cook thought the patent would not hold good, containing only what had been done before.

On the proposition of Mr. J. A. Forrest, Mr. J. B. Moss, of Minshull street, and Mr. John Hickson, of Derbyshire, were elected members of the society.

The Chairman feared that nothing had been done lately with direct action sun printing.

Mr. Keith had tried two whole day's exposure, and by keeping eight or ten frames going, he could produce a batch at the end of a week for fixing.

Mr. Bell was inclined to report favorably of Mr. Long's process for positive printing by development. Encouraged by the specimens he had obtained in London, and which he exhibited at one of the meetings of the society, he had procured paper, and on making experiments, he had found that it was possible to produce everything that could be desired. His experience fully bore out Mr. Long's statement as to the cleanliness of the process. The gallic acid did not turn black or dirty, a very great advantage in the development.

Mr. Forrest said he had been working the process for the last twelve months: and Mr. R. Cook said that he and his brother had done so for years. There were some little difficulties attending it, which in fine weather made them half inclined to lay it aside. It had, however, a very great advantage in winter.

Mr. R. Cook produced some negatives taken by himself and Mr. Alexander Cook, on wax-paper, on Christmas day. They had used Canson's paper, procured from Mr. Chadburn a few weeks ago. The process was a modification of Mr. Fitt's. They had the remains of several iodized solutions, which they mixed together. There was a rather larger proportion of iodide of potassium than usual, and a very strong silver bath, more than 30 grains to the ounce.

Mr. Keith: In this cold weather it is necessary to increase the strength both of the iodizing solution and the silver bath.

Mr. Cook: Formerly, we could not get the black sky until we increased the strength of the solution. There was one fault with wax-paper: they could get no very great distance. In one of the pictures there should be some iron works in the back ground, but they are quite lost.

The negatives referred to were circulated about the room, and were greatly admired. They were views in the vale of Llangollen, one being a beautiful representation of the keeper's house, picturesquely situated in the heart of a wood in Wynnestay Park, and another of a water-mill, on the Dee. The gamekeeper's house took fifteen minutes exposure in the brightest part of the day. There was snow on the ground, and Mr. Cook said they had no little difficulty in keeping themselves warm during the time.

The Chairman scarcely expected that December would be productive of such excellent photographic fruits as these.

Mr. R. Cook said he had brought these results partly with the object of refuting the argument, frequently advanced at their meetings, that over-exposure was the cause of failure in wax-paper negatives. He did not believe it at the time, and he had now found that it was not the fact, but that the failures arose from a weak silver bath and the want of acetic acid.

In the bath used on this occasion, there were of

Water	15 oz. avoir.
Nitrate of silver	1 oz. "
Acetic acid	2 oz. "

Mr. Forrest was sure the meeting was much obliged to Mr. Cook for bringing his negatives forward. It was by the announcement of practical results of this kind that so much benefit was conferred upon the art.

Mr. Forrest threw out a suggestion, that on the arrival of spring, the members should make photographic excursions on particular days, the various processes being represented and tested, and the results compared.

The idea was declared to be an excellent one, Mr. Bell and Mr. Cook declaring their willingness to join in an undertaking calculated to be productive of such interesting results.

In answer to Mr. Cook,

Mr. Forrest stated, that the negociations with the Historic Society, relative to the suggested amalgamation, had fallen through, but that the Historic had done them the honor of electing their officers honorary members of that society, a compliment which, he was sure, they would all have pleasure in reciprocating.

The proceedings then terminated.

From the Jour. of the Phot. Soc.

NEW DRY COLLODION PROCESS.

BY M. M. FIRMIN AND LASSIMONNE.

We extract the following dry collodion process from the "*Bulletin de la Societe Francaise de Photographie.*" It seems to be characterized by more originality than we have lately seen shown in these different modifications of our English processes.

The collodion is prepared from the following formula:

Ether	600 parts.
Alcohol	400 "
Iodide of zinc	8 "
Bromide of cadmium	3 "
Gun cotton	15 "

This is poured on the plate, and rendered sensitive in the usual way, in a bath containing from 20 to 25 grains of nitrate of silver to the ounce of water. It is to be carefully washed, and then a mucilage of gelatine, prepared as follows, is poured over the surface: Take

Water	1 quart.
Gelatine	¾ oz.
The white of one egg.	

This latter is to be well beaten up, the froth allowed to settle, and then the liquid albumen added to the solution of gelatine. It is then to be boiled until the albumen is entirely coagulated, and, whilst still warm, filtered through bibulous paper: after the addition of 10 per cent. of solution of ammonia, it is ready for use. It must be slightly warmed before using, to restore the fluidity, a small quantity poured on and off the collodion side of the plate; and this latter put by to drain in a box, taking care to place the sensitive side downwards in such a manner that it rests by means of one of the angles on a piece of blotting paper, and the upper opposite corner against the side, so that it is only supported by two points. This method of drying is indispensable for preserving the uniformity of the prepared surface.

The plate may be kept excited for more than a month; and as its sensitiveness is not very great, the time of exposure should not be too short.

After taking from the plate-holder, after exposure, the glass is to be completely immersed in a saturated aqueous solution of gallic acid, and the action allowed to proceed for about a minute; the plate is then to be removed (to avoid stains), and a few drops of the following solution added to the liquid:

REDUCING SOLUTION.

Water	100 parts
Nitrate of silver	5 "
Sub-acetate of lead	5 "

The image now appears rapidly, and with a remarkable vigor and clearness. As soon as sufficiently developed, the process is completed by fixing in a saturated solution of hyposulphite of soda, and well washing.

This process possesses great certainty in execution, and a very great clearness; the sharpness of the lines rivals that of albumen, and the sensitive plates may be carried about, merely wrapped in paper, if kept in perfect darkness.

The above mode of developing may be equally well employed for developing moist collodion pictures. After exposure, the plate is to be immersed in a saturated solution of gallic acid, and at the end of a minute removed. A small quantity of the above reducing solution (nitrate of silver and sub-acetate of lead) is then to be added, upon which the picture will develope rapidly. The development must not be pushed too far, as the dark parts of the picture offer a great obstruction to the passage of light.

THE HALLOTYPE PATENT.

SPECIFICATIONS.

To all whom it may concern:—Be it known that I, John Bishop Hall, of New York, County of New York and State of New York, have invented certain new and useful improvements in the treatment of pictures, and I do hereby declare that the following is a full, clear, and exact description of the same, that is to say:

My invention is certain improvements in the production of a high degree of artistic and stereoscopic effect in pictorial representations of objects, and is applicable to all kinds of prints, such as photographs, engravings, lithographs, and similar productions.

The principle consists in combining two or more of the photographs, engravings, &c., as the case may be, to form one picture, and which are to be fac-similies or duplicate impressions upon a material semi-transparent, or capable of being rendered more or less transparent according to the effect to be produced, those pictures are to be so placed above each other, that the general lines will coincide when one, both, or all pictures are concentrated or secured to a plate or plates of glass. A variety of effects may then be formed either by coloring, tinting, and shading, by cutting out parts of the back picture, or by all together in diffusing combinations, the effects being capable of being heightened in many ways. In addition to this a background, made of white light, or reflecting material, is placed behind the pictures; white paper, mirrors, or a plate of enamelled china, produce good effects. These backgrounds may be substituted by painting over the back of the last picture, with a white, or light color, by silvering it, or by applying quicksilver thereon. These are variations depending on the convenience and taste of the operator. Pictures of all kinds and especially photographs, are perfectly preserved against decay or deterioration from the action of the atmosphere, and particularly from that of dampness.

I will first illustrate my invention by a description of its employment in the treatment of photographs, to which it is especially applicable. If the picture is a portrait, two or more copies are to be taken in the usual way upon photographic paper, and I will describe it as applied to two. The pictures are rendered more or less transparent by the application of oil, or its equivalent, and each is to be cemented to a separate plate of glass, by means of copal or other suitable transparent varnish, which has been previously applied at a time sufficiently in advance for it to become partially dry, or as is technically termed "tacky." In applying the picture to the plate of glass, care must be taken to work out all the air bubbles from beneath, in order that it may lie in close contact with the glass. Each picture is then allowed to become dry or nearly so, when it will be well to scrape off the back carefully to remove any excess or lumps, and to leave a smooth surface. After this, one or more coats of copal or other suitable varnish is to be given, and when this is dry, the two plates of glass are to be joined together, so that the lines of the pictures will coincide, in which position they must be cemented or framed together. When two back pictures are prepared for the combination, they may be cemented upon opposite sides of the same plate of glass, instead of upon separate plates as above set forth, or the imprint or photograph may be taken in duplicate upon opposite sides of the same paper, or other substance proper for the purpose. These variations, although embracing the same principle, do not for all purposes produce equally good effects with the first described plan.

The above is a description of the improvement in its simplest form. Different effects may be produced, when the front picture only is executed on or attached to the plate of glass, and the second one placed behind it so as to correspond with the other, or when the front or back pictures are secured between two plates of glass with gum gomar, balsam of fir, or similar substances remaining in a liquid state.

Colors may be applied to the back picture only, or partially to both, or so that one color in the front picture may have a ground of another color in the back picture. Very fine effects are produced by cutting out certain parts of the back picture, thus allowing more light to pass through to the front one. Additional back grounds of color may also be employed, all which can be determined by the taste and skill of the operator.

It will be seen that the picture is fully preserved from atmospheric agents or effects, the first one being sealed between the glasses, while the back one is protected by the varnish, or that one may also be sealed by cementing an additional plate of glass or other proper material over it, and by a frame securing a hermatic joint around it.

In the above, paper is specified as the material upon which the imprint should be taken, but there are many other substances which may be employed for that purpose, particularly in the case of photographic pictures. The process may be varied by producing the picture directly upon the glass, either by some system of transfer, or printing, or by the photographic art, and like effects still obtained.

I claim producing in pictures to be seen by a direct light, a high artistic and stereoscopic effect, by combining with a white light or reflecting back ground, or its equivalent, two or more identical pictures of the same subject, rendered more or less transparent, and executed on or attached to plates of glass in the manner substantially as herein set forth.

JOHN BISHOP HALL.

J. P. PIRSSON, } *Witnesses.*
J. GURNEY. }

From the Liverpool Photographic Journal.

THE ALBUMEN PROCESS.*

BY MR. CASH.

If there is anything original contained in this paper on the albumen process, I wish to state that it is the result of two persons having pursued the subject conjointly for the space of three or four years. And should Mr. Leece and myself produce anything in this paper which may be of use to the Manchester Photographic Society, they are heartily welcome to it. We will begin with the

PREPARATION OF THE ALBUMEN.

The albumen of the hen egg appears to us to be the best for the photographer, on account of its uniformity in thickness, and also for the simple reason that hen eggs are easier to be obtained than either duck or goose eggs. The albumen of the duck egg is, however, very clear and white.

The first step is to obtain some fresh eggs, though there is such a thing as being too fresh, in which case the yolk is so tender that it is next to an impossibility to break them without mixing the yolk with the white, but they do very well after six or eight hours' keeping. In cold weather, we have often taken good pictures after they have been kept a week.

In preparing the albumen, we provide ourselves with a large basin, holding about one pint, and two clean vessels, one to hold the yolks and the other the whites. Break the eggs very carefully, taking particular care not to mix any yolk or germ with the white, and then put into the basin the following formula:

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* Read at the meeting of the Manchester Photographic Society, Dec. 3d, 1856.

Albumen	3 ounces
Iodide of potassium	35 grains
Lump sugar	35 "
Water	½ ounce.

If the eggs are thin and poor, do not add any water. Then with a silver fork, or a spoon, beat the whole into froth, until the basin is quite full, and the froth so thick that the fork or spoon will stand upright in the centre of the basin. The time it usually takes to get the albumen into that state is from 15 to 25 minutes, constantly beating.

The basin containing the albumen is then laid aside, and covered over with a plate of glass, or a board, to keep the dust out, and the albumen allowed to settle down, which will take at least ten hours, when it may be poured into a bottle and corked up for use. Many operators use iodide of ammonium for iodizing their albumen; they give it the preference on account of the small holes iodide of potassium is said to make in the skies or black parts of the negative. The small holes are always present in negatives prepared with albumen iodized with iodide of potassium, but they do not often print on the paper. We have always been accustomed to use iodide of potassium from the belief that it is easier to be obtained good than the iodide of ammonium; but there is no doubt that the latter, if pure, is the best salt of the two. By putting bits of camphor into the bottle of prepared albumen, it may be kept good for comparatively a long time. Last summer we took some good negatives with albumen which had been kept four weeks in this manner. Good glass is indispensable to the albumen process; patent plate seems to us to be the most suitable. It is easily cleansed in the following manner:

A deal-board and a hard nail-brush and two perfectly clean cloths should be provided. The deal-board should be considerbly larger than the largest plate of glass employed. The glass is then laid on the board and brushed over with a moderately strong solution of ammonia or cyanide of potassium; the latter is very destructive to albumen film. Next rinse the glass under a running tap, then take off the superfluous moisture with one cloth and dry and polish with the other.

To coat plates of glass with albumen, the following articles must be provided, which are—with the exception of one—on the table for your inspection. The article not present is a small cast-iron stove, similar to those seen in almost every ironmonger's shop in town, having a round hole and a lid in the top. This hole is about five inches diameter in mine; and when there is a good fire, the heat striking upwards from it is very considerable. It has this advantage over a fire, that you escape having your plate in the current of air which forms the draft of the chimney, and which is loaded with smoke and dust.

The next important article is the albumen filter, a simple piece of apparatus formed out of a lipped measuring glass and a funnel. The latter should be long enough to reach to the bottom of the measuring glass, and a small piece of sponge put into the neck of the funnel completes the filter. The piece of sponge should be cut slightly conical, so that when pressed into the funnel, it will retain its position. It is, perhaps, needless to mention that this piece of sponge should be very fine, and kept scrupulously clean.

The bent piece of wire is for the purpose of holding and revolving the plates whilst they are drying over the stove. It may be made of either steel, iron, or brass wire, but which ever is used, it should possess sufficient elasticity to retain the glass plate by the corners between the two loops, in any position the operator may place it. A string is also to be tied to the wire, and by means of the sliding knot round, and the play of the corners of the glass plate in the wire loops, a level position may be attained. A boy's marble placed upon the plate tests the position very nicely.

A brush to dust the plates, and a goose-quill to distribute the albumen over them, completes the apparatus.

Having thus explained the use of the apparatus before us, we will accompany the photographer to his stove, which should have a bright and clear fire, and on a table close to the stove, he should have the above mentioned apparatus, viz.: a bottle of albumen, filter, piece of wire, brush, and a glass of clean water for containing and keeping clean the quill. We then place one of the clean plates in the wire and level it, brush off the dust, pour on some of the filtered albumen, distributing it over the plate with the quill, pour off the excess on to the sponge, and carry the plate to the stove in the wire, the albumen side downwards until you get there; then turn the plate, albumen side upwards, and begin to spin over the centre of the stove by the string attached to the wire. The string should always be slightly damped before spinning, as small particles are liable to fall on and spot the plate. The time taken to dry the albumen is usually about half a minute. The plate is then reared up in some warm corner of the room near the stove. In the operation just described, you will see that dust is a very great enemy, and that every precaution must be taken to prevent it falling on the plate. We would caution the operator where he will most likely meet with this pest, viz: the ceiling and walls of the room, and the clothes and hair of the operator, and nothing but a good brushing of these places, preparatory to the preparation of a plate, will enable this operation to be successful.

EXCITING THE PLATE.

Before rendering our plate sensitive to light, we must mention a fact that is, perhaps, not much noticed by albumen operators. The plate coated by iodized albumen is very deliquescent. When first brought from the stove, the film is quite hard and brittle when scratched with a hard point. If the same plate be allowed to cool in a moderately cool room, it loses all the brittleness, and become quite soft. Now the different degrees of hardness in the film influence, to a great extent, the working qualities and appearance of the plate after it has passed the exciting bath. We have brought for the inspection of the society, three plates which show the appearances alluded to. The first is a plate that has been put into the bath too soon, and was, evidently, too hard for a uniform chemical action to take place. The second is a good plate, and the third is the inverse of the first, being put in after remaining too long in cooling; or the same effect would have been produced had it stood near a damp wall. In the latter case the chemical action has been too intense.

The albumen operator then requires some test to enable him to judge when to put his plate into the bath, and the only one we know is that of scratching the corner of the plate with the finger nail, and if he can just scratch it, it is fit for the following exciting bath:

Nitrate of silver	70 grains
Distilled water	1 ounce
Glacial acetic acid	1½ drachms.

Though this bath is a strong and expensive one, we would advise persons practising the albumen process, whether they make use of the vertical or horizontal dipping troughs, not to limit themselves to too small a quantity, as economy in this respect—as in many other branches of photography—is no economy at all in the long run.

We have always made use of the horizontal gutta-percha and porcelain trays for our exciting baths, and have experienced no difficulty in exciting plates in them, six or seven ounces of aceto-nitrate solution in the bath has proved sufficient to excite plates 10×8 inches, but as before mentioned we prefer to have a much larger quantity on hand in addition to that in the bath. Great care must be taken to avoid dust falling on the bath, as the dust floating on the surface of the solution marks the plate. The bath ought to be provided with a cover, which should only be removed when there is a plate to be excited, and replaced when the operation is performed.

The exciting of an albumenized plate in a horizontal bath might at first sight appear difficult, but it is not so, a little practice being all that is necessary to accomplish it with the greatest ease. Care must, however, be taken to allow the plate to fall on the surface of the solution with a progressive and uninterrupted motion, as any stoppage always produces a line or crack sufficiently substantial to print on the paper. Having been accustomed to work in a room of a warm and uniform temperature, our time of leaving the plates on the exciting bath has usually been one minute, but the time varies according to the temperature.

The plates, after leaving the exciting bath, must be well washed in a bath of distilled or filtered rain water, and then left to dry in the grooved plate box, which should have a piece of clean blotting paper at the bottom to absorb the water.

EXPOSURE.

Albumenized plates have obtained a reputation for their good keeping qualities; but though we can bear testimony to this fact, yet any party following the albumen process can hardly fail to notice that the loss of sensitiveness in his plates is in proportion to the length of time they are kept; our own experience is, that we have always obtained the best results when the exposure has been under the influences of a bright sun, and the plates have not been kept more than two or three days. We have been accustomed to go out on a two or three days' tour with perhaps eight or nine plates in our plate box.

Our mode of changing the plates in the field from the plate box to slide, and *vice versa*, is as follows: We have a large bag that is just over the camera, in fact, it is a case or cover for it; it is twice the length of the bottom board of the camera, is open at both ends, and is closed with a drawing tape. At the end of the bag at which the slide is introduced, are two sleeves, one at each side, made of the same material as the bag, which close and open for the admission of the hands by two elastic bands sewn in the ends.

The bag is made of one fold of thick black calico, and lined with a yellow material on the inside.

The plate box now being inside the camera, where it always remains—except when taking a picture—the slide is put in at the back, and the bag drawn up perfectly tight. The hands of the operator should then be introduced through the sleeves at the sides, to open the back board of the slide and lid of the plate box. The plate should then be taken out of the slide and put into a groove of the plate box, the albumen side upwards. Another plate should then be taken from the box and put into the slide, the albumen side downwards. It is a good plan, before any plates are exposed, say before leaving home, to place the plates so that they will always have their albumen sides downwards in the box, they being more easily got into the slide. On the other hand, the exposed plates are best put with the albumen side upwards, so that by touching you may be enabled to tell which have been exposed and which have not. Care must be taken to have the plate box perfectly impervious to light when brought out of the camera, during an exposure.

DEVELOPMENT.

We will now proceed to the development. The method which we consider best is as follows: Put the negative that is to be into a porcelain tray a little larger than the plate, pour on it about ¼ inch deep of a saturated solution of gallic acid, allow it to stand fifteen minutes to soften the film, then add aceto-nitrate solution, drop by drop, until it produces a slight milkiness. If the plate is a good one, and the exposure correct, nothing more is necessary than to leave it there until it is developed, and as much half shade brought out as it will stand without endangering the transparency of the negative.

Warmth and pyrogallic acid may be made of use for negatives that have been under-exposed, but if this can be avoided it is much better.

We have fixed all our negatives with a moderately strong solution of hyposulphite of soda, and formerly were in the habit of bleaching them with bichloride of mercury dissolved in hydrochloric acid, and restoring them with the hyposulphite of soda solution. The latter method is quite unnecessary in good negatives, which are certainly dense enough, as it renders them still denser, and in some instances has spoiled them.

With these remarks, we conclude our paper on the albumen process, and hope that in answer to a wish expressed by some gentlemen present at the last meeting, we have succeeded in informing the Manchester Photographic Society as to our manner of manipulating.

Special Term—Before Judge Duer.

AMBROTYPES;

The State Courts have no jurisdiction over causes growing out of a Patent.

W. A. Tomlinson agt. M. L. Battel and another.

This was an action to restrain the defendants by a perpetual injunction from using the word "Ambrotypes," as applicable to photographic pictures and likenesses taken by them, and also for damages sustained by plaintiff from the unlawful use of the word by the defendants. The complaint stated that, heretofore, one Cutting had invented and discovered certain improved processes and modes of taking pictures upon glass, and that he had invented the word "Ambrotype," which he exclusively applied to all pictures taken by such improved processes, and stamped upon such pictures or their frames. It averred that Cutting had obtained a patent from the Government of the United States for securing to him an exclusive right to use the processes so invented by him, and that by various mesne assignments, the exclusive right to use the processes so patented in the City and County of New York, and other counties of the State was vested in the plaintiff, who, by virtue of such assignments, had also acquired the exclusive right to use the word "Ambrotype," to designate the pictures, likenesses or impressions taken, or manufactured by them, as assignees of the patent. The complaint also alleged that the defendants, in violation of the exclusive right of the plaintiff had taken, manufactured, and sold within the City and County of New York, under the name of Ambrotype, large numbers of pictures, likenesses, &c., similar to those taken and manufactured by Cutting and his assignees, to their own great profit and advantage, and to the great detriment of the plaintiff. The relief demanded is that above stated. The answer denied specifically each material allegation in the complaint relative to the exclusive right of Cutting and his assignees, but admitted that the defendants had used the word "Ambrotype" to designate the photographic pictures taken by themselves on glass, and asserted that they had a lawful right so to do.

When the cause was brought on for trial, and pleadings were read, the Judge said that he had great doubts as to the jurisdiction of the Court, and directed that question to be argued before any witness should be examined.

It was accordingly argued, upon a subsequent day, by the counsel for the plaintiff, and was decided by the Court, without calling upon the counsel for the defendants to reply.

Duer, J.—Considering the law as settled—as I have recently had occasion to show in the case of the "Balm of a Thousand Flowers"—that there can be no exclusive property in a generic or specific name, unless as incident to an exclusive property in the article, composition or process, which the name is used to designate, I must of necessity hold that the plaintiff cannot maintain the action, unless he can show that he has an exclusive right in the process by which the pictures, properly called 'Ambrotypes,' are produced, for, if the defendants have an equal right to use the process, they have an equal right to apply to the pictures it produces their appropriate and distinctive name. The plaintiff claims an exclusive right to use this process within this city and county, by virtue of the patent granted to Cutting, of which he is in part an assignee; and hence it is upon the existence, validity and construction of this patent, that the title of the plaintiff to the relief which he claims, principally, although not wholly depends. But, as I understand the Constitution and laws of the United States, questions concerning the validity and construction of a patent belong to that class which the Courts of the United States are alone competent to determine. The act of Congress "To promote the progress of useful arts," passed in 1836 (acts of 1836, p. 244, sec. 17), has put an end to any doubts that may formerly have existed on this subject, since, by its necessary interpretation it gives to the Courts of the United States, exclusive cognizance of all cases arising under the patent laws; and in my opinion the case before me falls within these general words. It is a case in my opinion as truly arising under the patent laws, as if the action had been brought for direct breach of the provisions of the patent, which is relied on, since it is brought for the violation of an exclusive right, which, if it exist at all, exists only as a consequence of these provisions. It is true this exclusive right is not given by the terms of the patent, but it is only as an incident flowing from the exclusive right which the patent purports to secure that it can be established, to prove its existence, the patent itself must be produced, proved and construed.

It is not necessary to deny that when a question as to the construction, and, perhaps, as to the validity of a patent, arises, collaterally, in the progress, and upon the trial of cause, the necessity of its determination will not oust a State court of the jurisdiction which it derived from the nature of the action and the state of the pleadings. But here the existence and validity of a patent, concerning the process, by which the pictures to which alone the name of Ambrotypes can properly be given, are produced, lie at the very foundation of the plaintiff's claim. They are facts constituting, in part, the cause of action; as such, they are averred in the complaint, and as such are put at issue by the answer. It is upon an exclusive right, secured by a patent, that the action is founded. It is this exclusive right that the answer denies, and it is the denial which raises a question that, when thus raised, neither this nor any other State court, in my judgment, has authority to determine—a question which I have no right to determine, and must refuse to consider.

I am not aware that there is any adjudged case that, in its special circumstances, resembles the present, but the principle upon which I act in refusing to hear this cause, I apprehend is distinctly laid down by the Supreme Court in Parsons against Barnard (7 John R, 144), by Chancellor Kent, as Chief Justice, in Livingston agt. Van Ingen (9 John., 582), and by Mr. Justice Strong, in delivering the judgment of the Court of Appeals, in Dudley agt. Mayhew, (3 Com 9.)

It is plainly for the interest of the parties that the objection to the jurisdiction of the Court should now be taken since, as it cannot be waived, it may be raised in any stage of the proceedings, and even in the court of ultimate retort. Its decision now may be a saving of much time and expense.

Following my conviction, I shall, therefore dismiss the complaint for want of jurisdiction, but without costs, and with liberty to the plaintiff to appeal without security to the General Term.

G. L. Ford for plaintiff; J. Humphreys for defendants.

From the Liverpool Photographic Journal.

MANCHESTER PHOTOGRAPHIC SOCIETY.

The second meeting of the present session was held on Wednesday evening, Dec. 3d, at the rooms of the Literary and Philosophical Society, George street, which are much better adapted for the purpose than the lecture room of the Royal Institution.

Prof. Williamson occupied the chair, and there was a numerous attendance of members.

Mr. Cottam, the secretary, reported that the council had decided upon two of the pictures for the forthcoming number of "Photographic Illustrations," one to be a portrait of Mr. William Fairbairn, C.E., F.R.S., a vice-president of the society; and the other a copy of an oil painting, by F. Wyburd, "The Kiosk—Lalla Rookh."

Mr. Cottam explained an ingenious diaphragm or stop, by Mr. Norton, a new application to the camera, which is capable of being enlarged or diminished, by simply moving a lever, and may be changed without danger during the progress of a picture.

Mr. Sidebotham exhibited a contrivance for taking instantaneous pictures, consisting of a revolving disc, with a spring.

A new stereoscopic camera, by Mr. Dancer, was exhibited and explained by Mr. Sidebotham. This camera has several nice contrivances to lessen the trouble and simplify the operations of photographers in the field. The lenses are situated in the interior of the camera, out of harm's way. The focussing apparatus is a novel one, and the stops are attached to the instrument, thus avoiding the inconvenience often experienced of these appendages being missed when required. But its principal advantage is the position of the dark box, which is attached to the bottom of the camera. It has a moveable lid, fitted with rackwork, which allows a number of prepared plates, previously arranged in the box, to be drawn up successively into the dark slide, and to be returned after exposure. The inconvenience attendant on seeking and arranging in a dark chamber is thus entirely obviated. With this instrument, Mr. Sidebotham said he had taken many pictures, having prepared his plates by the collodio-albumen process before leaving home, and developing them on his return. He believed a month might intervene between the two operations; and he exhibited some very beautiful specimens of his own production.

The secretary read a paper on the albumen process, by Mr. Cash, a non-member, who had kindly prepared it at the request of the Society.

Some specimens of the Photo-galvanographic Company's production were handed round, and were much admired.

A waxed paper negative, on Hollingworth's thin paper, entirely free from the faults to which this process is liable, and some interesting microscopic photographs, by Mr. Parry, were also examined.

Two papers were announced, that for January being by the Rev. W. J. Read, entitled "*Visits to the Society's Photographic Collection*," now exhibiting at the Mechanics' Institution, David street; and one on "*The Collodion Process*," by Mr. McLachlan, for February.

From the Liverpool Photographic Journal.

PREPARED PLATE BOX.

BY N. S. MASKELYNE, ESQ.

This box has for its object the retaining in a portable form, and in a state fit for immediate use, a series of prepared glass plates, on which a sensitive surface has been formed, with permanent sensibility to rays of light, whether by the collodion-oxymel, by the albumen, or by any other process. It consists of four sides, which are fixed, and a top and bottom formed by moveable shutters, like those of a camera slide. Within the box is a simple mechanism for holding a number of glass plates, separate one from another, and for causing these all to move simultaneously when the mechanism is set in motion, so as to permit every glass to fall through a small space, and to allow the bottom glass of all to fall into the camera slide, placed below the box to receive it. The mechanism consists of four small cylindrical barrels let into the wood-work of two opposite sides of the box, two barrels in each side. The barrels are placed vertically in the side of the box, and each barrel carries on it two series of boxwood or ivory pegs, fixed horizontally into the barrels, so that series 1 consists of as many pegs, *a b c* and *d*, placed vertically one over the other, as the number of prepared glasses which the box is to hold, and at twice the distance from each other that the glasses are to be allowed to fall at each motion of the machine. Series 2 of pegs is precisely identical with the former described series 1, but placed on the barrel in a plane at an angle rather less than a right-angle (say about 75 or 80°) to the plane which would pass through series 1 of pegs and the axes of the barrel. The pegs of series 2 are placed at points of the barrel exactly intermediate in distance from the top or bottom, to those occupied by the pegs of series 1. The result of this arrangement will be, that if a glass rests on the top pegs (pegs *a* of series 1) of all four barrels, and these barrels be made to revolve, each on its axes, through 80°, in such a direction as will bring the second series of pegs into the position previously occupied by the former series—the glass will fall as the first series of pegs is withdrawn from the suport of it, but will alight on the highest pegs of the second series (pegs *a* of series 2). When the barrels are again made to revolve back into their former position, the glass will be dropped another stage, and will be found on the next lower pegs (pegs *b*) of the first series. Thus, by making all the four barrels simultaneously revolve through the small arc, first in one direction and then back in the other direction into their former position, one, or two, or as many glasses as there are pegs in each series on the barrels, may be made to drop through a small space, vertically, and may, by successive stages, after being introduced at the top, be made to descend to the bottom, and so into a camera slide, if one be placed below the last set of pegs, and be open to receive the glass as it falls.

This is simply effected. The barrels are all worked by little levers in a slide, so that a push forward and a pull back of this slide enables every glass in the box to descend one stage, (consisting, of course, of two steps, viz., from peg *a* of series 1 to peg *a* of series 2. and from peg *a* of series 2 back to peg *b* of series 1). For use, the box is charged full, say with twelve glasses, and a thirteenth glass may be placed in the camera-frame, which has a sliding shutter back. This frame is used to take the first picture; it is then slid into its place at the top of the box, *back downwards*. The shutter of the top of the box is drawn out—then the shutter of the slide. The shutters are replaced and the slide withdrawn; the glass in the slide has dropped, *face upwards* on the pegs *a* of series 1. The slide is now put into its place *below* the box, *back upwards:* the shutters are withdrawn as before, and the rollers are now worked once forward and once backward. The result is that simultaneously every glass in the box falls one grade: the bottom glass falls into the open frame, while the top glass on which the picture was taken has now fallen on the pegs *b* of series 1, in each barrel, a place of security. It need not be said that the shutters of box and slide have only to be closed, the latter withdrawn and used in the camera, and the process repeated twelve times to enable the operator to carry away thirteen pictures which only require development.

It only remains to add that there is another pair of barrels worked by a separate motion, with small pegs to come *over the tops* of the glasses just as the pegs of the other four barrels are *under* the glasses, in order to retain the glasses in place, when the box is being carried by a handle in one of its sides.

The pegs are all cut away so that only the *edges* of the glasses touch them, otherwise they would abrade and tear the collodion (or other) film.

If it needed to take smaller pictures than those for which the camera and its slide are constructed, frames may be made to hold the glasses of the size required, the periphery dimensions of which frames are those of the size for which the box is constructed: the one exhibited was 12 by 10. The best wood for it is straight-grained rosewood, as it is the stiffest for a given thinness of any we are acquainted with. The frames exhibited were of this material. Of course the shutter of the camera slide has a spring to keep the glass in its place. An inspection of the box will remove any surmises as to its proving complicated or unwieldly in use. The precautions it requires are just those which the true photographer is accustomed to at every step of his progress.

From the Jour. of the Phot. Soc:

NEW DRY COLLODION PROCESSES.

In the December number of the "*Bulletin de la Societe Francaise de Photographie*" we find the following dry collodion process, by MM. Meline and Montreuil, and if successful, which they say it is perfectly, is indeed a great step in the right direction. We confess that in our hands it has not quite answered all the expectations we might have formed on reading the description, but the success or failure of one or two persons is always a bad criterion of the value of a process. We insert it therefore in the hope that other more skilled or more fortunate experimentalists may meet with the promised success.

The glass, after being most scrupulously cleaned, is coated with collodion: for this purpose any collodion, new or old, will do; those found most sensitive being mixtures of collodion residues, containing iodides, &c. It is then rendered sensitive in the ordinary manner in a bath of nitrate of silver, 40 grains to the ounce, containing besides acetic and a little nitric acid. After removing from the bath the plate is washed with the greatest care in *common water* until all the free nitrate of silver is removed, and then allowed to dry, away from light or dust. When required for use the plate is to be dried over a spirit lamp, so as to prevent the film becoming detached in the various developing, fixing, or washing processes. The exposure varies between one and five minutes, according to the intensity of the light and the power of the lens.

The developing is conducted in the way recommended by Legray in his paper process (aqueous solution of gallic acid and a little nitrate of silver if required); and when sufficiently intense it is fixed either in a weak solution of cyanide of potassium or concentrated hyposulphite of soda, and then washed.

"Thus," say they "our process is less complicated than that of Dr. Norris, and is perfectly successful."

M. Dupuis has made known to the world through the pages of *La Lumiere*, a modification of the honey, oxymel, glycerine, &c., processes in use in England.

The collodion which he uses is prepared as follows:—

Ether	Sp. gr. ·745	6¼ fluid ozs.
Alcohol	" ·849	2 "
Gun cotton		30 grains.

As soon as this is completely dissolved, the clear solution is poured off, and to every ounce are added 4½ grains of iodide of zinc.

The exciting bath into which the plates, coated in the usual manner, are to be plunged, consists of—

Nitrate of silver	1 oz.
Distilled water	10 ,,
Glacial acetic acid	1¼ ,,

Saturated in the ordinary way with iodide of silver

After the plate is rendered sensitive, it is to be dipped into a basin of distilled water, allowed to remain there for a few minutes, and then washed under a gentle stream of pure water until the surface no longer appears greasy.

The solution of dextrine with which the plate is now to be coated is prepared in the following manner:—

One ounce of water is saturated with dextrine (British gum of commerce), and five grains of camphor added, to prevent its becoming mouldy. For use, this syrupy solution is to be dilute until it has a specific gravity of about 1·03.

When the sensitive plate has been thoroughly washed a small portion of the above solution of dextrine (which must be filtered just before using) is poured on, and, after remaining for a few seconds, poured off, and replaced by a fresh solution of dextrine. This must be allowed to stay on the surface for a short time to permit of its perfect absorption by the film, and then poured off from one corner.

After being drained for a few minutes, the plate may either be put by in a box standing on one or two folds of blotting paper, to dry at leisure, or it may be dried more quickly, before a fire or over a spirit lamp, as a temperature of 120° to 140° Fahr. in no way interferes with the sensitiveness. It is, however, preferable to allow it to dry spontaneously.

Gallic acid, in saturated aqueous solution, will develope the latent image in the dry collodion, as well as in the ordinary albumen process, but M. Dupuis prefers the following solution of pyrogallic acid:—

Pyrogallic Acid	3 grains.
Distilled water	2 ounces.
Citric acid	3 grains.

He has for some time past used critic acid in preference to acetic acid in the developing solution, both for wet and dry collodion; its price is much less, it is easier obtained, and great intensity is given to the picture, with perfectly opaque skies.

Just previous to developing, the plate is moistened with water, and then the above solution of pyrogallic acid poured over it. After remaining on for a short time it is poured off, mixed with 8 or 10 drops of a 20-grain solution of nitrate of silver, and then immediately poured back entirely and quickly over the whole surface of the plate. In a few seconds the image begins to appear and rapidly acquires considerable vigor. As soon as the picture is sufficiently developed it is washed and fixed in a saturated solution of hyposulphite of soda: then well washed, dried, and varnished in the usual way. M. Dupuis considers that although collodion iodized with iodide of zinc is slightly less sensitized than when iodide of ammonium is employed, yet it is preferable for this purpose as giving superior results.

The iodide of zinc is prepared in the following manner. Add a slight excess of a solution of iodide of potassium to nitrate of silver solution (old baths, positive or negative, will do very well for this purpose), wash the precipitate well, until a drop of washing water no longer precipitates nitrate of silver, then plunge into the paste of iodide of silver, a strip of pure zinc, adding a few drops of tincture of iodine to commence the decomposition. Metallic silver is reduced as a dark grey powder, and iodide of zinc remains in solution. By filtering the mixture, and evaporating the solution carefully to dryness, the salt is left very white and pure. It must be preserved in a well-stoppered bottle, as it is very deliquescent and liable to decompose by the absorption of oxygen from the atmosphere.

From the Livevpool Photographic Journal

DR. HILL NORRIS'S GELATINE PROCESS.

In our number for September last we gave a process, by Dr. Hill Norris, for preserving the sensitiveness of collodion plates, by coating the surface with gelatine. A fuller account of his process is given in the Journal of the London Photographic Society, and as it is one which slightly modified, is at present very much in vogue, both among our continental neighbors and at home, we give the following extracts from his paper:—

A very simple means is afforded of ascertaining if a given collodion be suitable for dry purposes. After removing the plate from the silver bath, pass the finger along it, pushing the film on before; if it be possible to draw the film back, or partially back, as a kind of skin, such collodion is quite unsuitable; but if the film in advance of the finger is in a powdery state, and cannot again be spread out, the collodion will be highly adapted to our purpose, as its porosity, admitting of the perfect penetration of the solution of gelatine, or other substance, affords an obstacle to the condensation of the film on drying.

Having procured a collodion containing the proper conditions of success, he proceeds to coat the plates in the ordinary manner, and immerse in a neutral solution of silver, the strength of which may vary from 30 to 40 grains of nitrate of silver to the ounce, and which should contain, unless the collodion is in the highest degree porous, at least one ounce of absolute alcohol to the pint. Dr. Norris finds that a contractile collodion may be made very short and porous by this addition, and as it is an alteration readily affected, it is frequently a most convenient method, but the condition of film induced is, nevertheless, not precisely analogous to that of old collodion. The plate having remained sufficiently long in the silver bath, is well drained and washed for five minutes or longer, under a tap of filtered water, back and front, to remove every trace of nitrate of silver.

Mr. Sutton, in the *Photographic Notes*, advises that attempts be made to retain as much as possible of the free nitrate of silver in the film, and as tending to increase the sensitiveness. Dr. Norris, however, is satisfied that this is an erroneous view, and likely to prove very unsatisfactory in practice, as the plate will be liable to blacken all over, a very common occurrence when carelessly washed.

Draining the plate well from the water, it is now immersed in a solution of gelatine, composed as follows, for a period varying from 5 to 15 minutes:—

Gelatine (Nelson's patent)........	120 grains.
Distilled water....................	14 ounces.
Absolute Alcohol..................	2 ounces.

It is sometimes necessary to vary the strength of the gelatine solution, occasionally using it as high as 10 grains or as low as 4 grains to the ounce; but I invariably find the collodion admitting the largest proportion of gelatine to give the most sensitive plates.

The solution of gelatine should be as brilliant as water. This is accomplished by adding to 16 ounces of the solution half a spoonful of albumen, shaking well together, and placing the bottle in a water bath, or by the side of a hot fire. When it reaches the boiling point of alcohol the albumen will be coagulated, and the solution must then be filtered. It is very difficult to coagulate the albumen, if alcohol be absent.

The next important operation is that of drying the plates. They were formerly dried reared up before a hot fire, at the distance of about a yard, which was found very successful; but recently a box heated with hot air has been used, which, of course, is an improvement, being much cleaner. The temperature at which the drying should be conducted varies, according to the strength of the gelatine solution. A strong solution requires a higher temperature than a weak one, because its gelatinizing point is higher. As a general rule, the temperature should be about ten degrees higher than the gelatinizing point of the solution used.

The plates being dry may be used at once, or stowed away in a dark dry box till required. They will keep a great length of time, as the surface of the iodide is protected from atmospheric influences by a pellicle, or varnish of gelatine, and, being dry, they are not in a condition for chemical action, as is generally the case with moist preservative processes. At the end of six weeks no deterioration has been observed.

Whether or no dry plates will ever be obtained as *sensitive* as moist ones containing free nitrate of silver is at present an undecided point; but his process, Dr. Norris believes approximates more nearly to this desideratum than any other, the exposure being at most but twice the amount required to produce a good negative by the ordinary wet process. Moreover, there is a great range allowed. He has taken two good negatives at the same time, under precisely the same conditions of light, given one two and the other four minutes, the only difference being that the former was much longer in developing. From casual results obtained in the course of experiments, Dr. Norris entertains but little doubt that the dry processes will ultimately rival moist ones in their degrees of sensitiveness.

The plates having been exposed, the development is very simple and consists of flooding over them a saturated solution of gallic acid in water, to every ounce of which 10 mimims of a 40 grain neutral solution of nitrate of silver have been added.

The development usually occupies from two to four hours. After well washing, they are fixed in the usual way with weak cyanide of potassium, dried and varnished.

The following are few sources of failure which, when the causes are known, are easily avoided:—

Blackening in circular patches.—These are black stains radiating from a centre, giving the idea that they are caused by the solutions being poured on at the spot. They entirely arise from chemically unclean plates, the gallo-nitrate of a former development remaining in the pores of the glass, and forming a centre of decomposition. The plates must be soaked in nitric acid, or strong solution of potash. The developing dishes should always be cleaned with fresh nitric acid before every batch of development, and if stains should arise upon them, it may be known that old gallo-nitrate is still in their pores.

Defective Developments: Blistering; Stripping up of Film.—The whole of these arise from the collodion employed being contractile, non-porous.

Universal Blackening.—This is due to an imperfection in the drying, owing to the gelatine setting unequally upon the surface.

This would never occur if the plates were dried more rapidly—say in a quarter of an hour.

Deposit over the whole Plate.—The result of inefficient exposure and prolonged development, which also occasions the yellowness of the shadows, when not due to the use of inferior gelatine.

In conclusion, Dr. Norris states that he is still investigating the changes which collodion undergoes, and he will at some future time lay before the society the result of his research in a more complete and elaborate form.

From the Liverpool Photographic Journal.

THE ORIGINAL INVENTION OF THE STEREOSCOPE.

The following is a reprint of the letters addressed by Professor Wheatstone and Sir David Brewster to the Editor of *The Times*, respecting the original invention of the stereoscope:—

No. I.

To the Editor of The Times.

Sir,—M. Faye, a distinguished astronomer, and member of the Academy of Sciences in Paris, communicated to that body, on the 6th of October, an account of a new and simple stereoscope, of which Abbé Moigno has given the following description in his *Cosmos* of the 12th of October:—

"M. Faye presented a new stereoscope, of his invention, of extreme simplicity. It is indeed a simple piece of cardboard or paper, in which are pierced two holes, whose centres are on the same horizontal line, and at the distance which separates the two eyes of the person who uses it. In looking through these two holes, about 12 millimetres wide (less than half an inch), at a stereoscopic slide, we see but one image, and for that reason we see it as much in relief as in the reflecting or refracting stereoscope. This is certainly a happy idea. * * * * The paper or the cardboard of M. Faye has the effect of making the optic axis rigorously parallel, as if they were directed to a point situated at an infinite distance. It is for this reason, and not, as Mr. Grove maintains, by crossing the optic axes by a forced and voluntary squinting, that the two images are superimposed."

In reference to this last remark, involving the theory of M. Faye's stereoscope, I may observe, in passing, that if Mr. Grove means that the optic axes are crossed, or converged to a point, in order to superimpose the images, he is unquestionably right, for the axes must be crossed at a point beyond the binocular slide. If he means that the axes are crossed at a point between the slide and the observer, he is wrong.

My object, however, is not to discuss the theory of the instrument, but to state the fact that it is not new, and has been long known and used in England. It is the invention of Mr. James Elliott, teacher of mathematics in Edinburgh, who contrived it in 1834, but did not execute it till 1839. Mr. Wheatstone had previously published the same principle in 1838 (*Phil. Trans.*, 1838, p. 373), but he used two separate tubes in place of the two holes employed by Mr. Elliott and M. Faye, and he directed the tubes to a point of convergence beyond the binocular pictures. It is well known that M. Claudet and others have the facility of converging their optical axes beyond the binocular pictures, and thus doing exactly what is done by Mr. Wheatstone's tubes, and Mr. Elliott's and M. Faye's holes; so that we can only consider these tubes and holes as auxiliaries to our natural vision.

In M. Faye's stereoscope the effect produced does not depend upon the holes: it is produced by the opaque card between them simply eclipsing one of the pictures from each eye—the left hand picture from the right eye, and the right hand picture from the left eye. Here we have a still simpler stereoscope. Hold up between the eyes and the pictures two or three fingers, and looking past the left side of them with the left eye, and past the right side of them with the right eye, so that each eye sees only one picture, you will see the two superimposed, and the relief perfect. A piece of card of less width will answer better than the fingers, but the fingers are always at hand.

A short-sighted person, or a person wearing very deep convex glasses, may, upon bringing the pictures close to his face, unite them into stereoscopic relief without the aid of holes, tubes, or fingers. I am, Sir, yours, &c, A.

October 15th, 1856.

NO. II.

To the Editor of The Times.

Sir: Allow me to make a few remarks on a letter which appeared in your columns yesterday, relating to the invention of the stereoscope.

In my memoir "on some remarkable and hitherto unobserved phenomena of binocular vision," which was presented to the Royal Society in June, 1838, and published in the philosophical transactions of that year, I described, besides the more perfect instrument to which I gave the name of "stereoscope," the only two methods by which binocular drawings might be seen in stereoscopic relief, without employing any optical appliances. In one, the pictures were placed beyond the intersection of the optic axis, in the other, they were placed before it. The latter is the method subsequently adopted by Mr. Elliott and M. Faye.

I should not, however, have thought it of sufficient importance to trouble you with this explanation alone, but your correspondent "A," by exclusively adopting the dates and statements put forward in various publications by Sir D. Brewster, with the intention of proving that Mr. Elliott had conceived the idea of a stereoscope before I had, has given the extensive circulation of *The Times* to these imperfect allegations, and I wish to show by sufficient facts that the claim thus supported is untenable.

The first public announcement of the principles of this invention appeared in the third edition of Prof. Herbert Mayo's *Outlines of Human Physiology*, published in 1833. In giving a short notice of my then unpublished experiments, the author says (p. 288):

"One of the most remarkable results of Mr. Wheatstone's investigations respecting binocular vision is the following: A solid object being placed so as to be regarded by both eyes, projects a different perspective figure on each retina; now, if these two perspectives be actually copied on paper, and presented one to each eye so as to fall on corresponding parts, the original solid figure will be apparently reproduced in such a manner that no effort of the imagination can make it appear as a representation on a plane surface. This and numerous other experiments explain the cause of the inadequacy of painting to represent the relief of objects, and indicate a means of representing external nature with more truth and fidelity than have yet been obtained. It would require too much space to enter upon the physiological views to which these experiments have led their author."

Shortly after the publication of my completed memoir, I gave a brief account of it at the meeting of the British Association, which was held at Newcastle, in September, 1838. The great interest excited when the stereoscope was on that occasion brought forward, may be seen by referring to the contemporaneous accounts of the proceedings of that body in the *Athenæum* and *Literary Gazette.*

Sir D. Brewster and your correspondent, in accordance with him, represent Mr. Elliott as having conceived the idea of a stereoscope in 1834, and as having realized his conception in 1839. Admitting these dates, the first is the year after my experiments had been announced in a work of standard authority, and the latter date is the year after my instrument had been completely described, and had become extensively known. It moreover appears that Mr. Elliott made no public announcement of what he is stated to have done until 18 years after the public were informed of my results.

These are surely insufficient grounds to dispute the originality of an invention, and Sir David is the last person who ought to have advanced them, since I can show, from our correspondence, that he was aware, so early as 1832, that at that time I was preparing for publication my memoir on the subject.

I am, sir, your obedient servant,
Athenæum, Oct. 18, 1856. C. WHEATSTONE.

NO. III.

To the Editor of The Times.

SIR: In the notice of Mr. Faye's stereoscope which I sent you under the signature "A," not thinking it of sufficient importance to add my name, I claimed the invention of it for Mr. Wheatstone as well as for Mr. Elliott, referring distinctly to Mr. Wheatstone's paper, as published in 1838, and to the later date of 1839, when Mr. Elliott executed his instrument. I therefore gave to Mr. Wheatstone all the originality which he claims from prior publication. But, as I had undoubted evidence that Mr. Elliott invented the stereoscope in 1834, and as his form of the instrument was exactly the same as Mr. Faye's, while Mr. Wheatstone's, though equally ingenious, was different, I placed Mr. Elliott's claim before Mr. Wheatstone's. I believe, therefore, that Mr. Elliott and Mr. Wheatstone are independent inventors of an instrument, or method, for uniting two dissimilar pictures, and thus producing relief, but that neither of them discovered the principle of the stereoscope. Mr. Elliott lays no claim to such a discovery. Mr. Wheatstone does, on the following grounds. After quoting a curious experiment on binocular vision, in which Leonardo da Vinci was on the eve of inventing the stereoscope, he makes the following observations:

"Had Leonardo da Vinci taken, instead of a sphere, a less simple figure for the purpose of his illustration, he would not only have observed that the object obscured from each eye a different part of the more distant field of view, but the fact would also, perhaps, have forced itself upon his attention that the object itself presented a different appearance to each eye. He failed to do this, and no subsequent writer within my knowledge has supplied the omission; the projection of two obviously dissimilar pictures on the two *retinæ* when a single object is viewed, while the optic axes converge, must therefore be regarded as a new fact in the theory of vision."—*Philosophical Transactions*, 1838, pp. 372–3.

Now, this claim to the fundamental principle of the stereoscope is groundless—Euclid knew it; Galen knew it, and explained it. Baptista Porta quoted Galen's explanation, and illustrates it with a figure. Aguilonious, in various parts of his *Optics*, does the same; and in his chapter on the vision of solids (*ta sterea*), he is puzzled in explaining how the two dissimilar pictures give a distinct image in relief. Early in 1852, and more recently, in my *Treatise on the Stereoscope*, I have quoted the passage from these authors to prove their knowledge of the principle in question, and Mr. Wheatstone has made no reply to the statement. It is, doubtless, strange that he was not acquainted with the researches of Galen, Porta and Aguilonious, for he tells us (*Phil. Trans.*, 1838, p. 372) that, "after looking over the works of many authors who might be expected to have made some remarks relating to this subject, he was able to find but one, which is in the *Trattato della Pittura*, of Leonardo da Vinci." Among these works were those of Porta and Aguilonious, for he has, more than once, quoted both of them (pp. 388, 390, 391, 393); but, though I make this remark, I do not mean to insinuate, nor do I believe that Mr. Wheatstone saw the passages to which I have referred.

In the extract from Mayo's *Outlines*, &c., from which it is evident that Mr. Wheatstone was acquainted with the principle of the stereoscope in 1833, and, therefore, earlier than Mr. Elliott, there is no mention whatever of any instrument or method of combining the pictures. It affords no proof that the reflecting stereoscope was then in existence; that he did combine them is obvious, and if he had assured us that he did it by means of the reflecting instrument, I should have placed implicit confidence in the statement.

In concluding his letter, Mr. Wheatstone remarks that I was the last person to have disputed the originality of his invention, as he can show, from his correspondence with me in 1832, "that I was aware that at that time he was preparing for publication his memoir on the subject."

I therefore call upon Mr. Wheatstone to publish this letter, or any part of it that has the least reference to the stereoscope. If it has, I pledge myself in future to place his claims above those of Mr. Elliott, whenever I have occasion to write or speak on the subject. Mr. Wheatstone's memoir is entitled *Contributions to the Physiology of Vision*, and I may well have known that he was preparing it for publication without the slighest knowledge that the stereoscope was to be one of the various subjects of which it treats.

As priority of publication is held by Mr. Wheatstone to establish the "originality of an invention," it may be sufficient to state to English readers that if this doctrine be admitted, Sir Isaac Newton has no claim to be the inventor of Fluxions; Leibnitz published the method before him, but there is ample proof that Newton was the earliest inventor.

In the preceding observations I have avoided the offensive personalities with which this subject has been noticed in a silly article* in the *Westminster Review*. I have no personal feelings to gratify in giving an opinion on this question. As the inventor of the lenticular stereoscope now in universal use, and of other forms of the instrument, I of course feel an interest in the subject, and involving as it does nice questions in the theory of vision, that interest has been greatly increased. In preparing lectures on the philosophy of the senses, I had occasion to study the department of binocular vision, and in the *Edinburgh Transactions* for 1843, I have given the true and demonstrable theory of the stereoscope, after Mr. Wheatstone had wholly failed, and acknowledged his failure. (*Phil. Trans.*, 1838, p. 360.) That theory has now been before the scientific world for nearly 14 years, and has never been controverted. When the paper which contains it was written, I believed that Mr. Wheatstone was the sole inventor of the principle of the stereoscope, as well as of the reflecting instrument, and I never failed to give him the credit of both. He himself knows how I was compelled to investigate the subject, and to establish the claims of others—of ancient authors to the principle—and of Mr. Elliott to an instrument for exhibiting it.

I am, sir, your obedient servant,
D. BREWSTER.
St. Leonard's College, St. Andrews, Oct. 22d, 1856.

NO. IV.

To the Editor of The Times.

SIR: It is difficult to deal with Sir David Brewster's reasoning. I have proved, by incontrovertible dates, my priority both in the discovery of the principle of the stereoscope and in the invention of the instrument. Sir David, in his reply, fully admits these dates, and says, "it is evident that Mr. Wheatstone was acquainted with the principles of the stereoscope in 1833, and, therefore, earlier than Mr. Elliott;" yet he announces that unless additional evidence be brought forward, he will continue to place that gentleman's claims above mine whenever he has occasion to write or speak on the subject; and he further requires a proof of my having constructed a stereoscope at the time my discovery was first announced. I cannot conceive why such a proof should be thought necessary, but I trust that the following evidence of Mr. Murray, of the firm of Murray & Heath, opticians, in Piccadilly, will be deemed conclusive as to this point:

43 PICCADILLY, Oct. 27th.

SIR: From an examination of the accounts furnished to you by Mr. Newman, of Regent street, during the time I was in his establishment, and which were prepared by myself, I am able to assign the date of my first knowledge of your stereoscopes,

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* The author of the "silly article" to which Sir David here alludes, is a gentleman of the highest attainments and standing in the scientific world. His opinions, as there stated, we know to be a true reflex of the feelings of those who are best competent to give a judgment on this subject. We have obtained his permission to insert the article; since, however, he has deemed it right to withhold his name, it would be unjust of us to mention it, although the clear and forcible style in which it is written will, we think, betray him.—ED. L. & M. P. J.

both with reflecting mirrors and refracting prisms, to the latter part of 1832. I am, sir, yours faithfully,
Prof Wheatstone. R. Murray.

The undue prominence given to Mr. Elliott's single experiment may lead some persons to imagine that the results he obtained were at least as perfect as those which I had previously produced; but it appears he did not proceed so far as to give the representation in relief of any solid body whatever. His attempt, as described by Sir D. Brewster in his recent work, was limited to represent three different flat distances, to either of which the eyes might be converged at will. The name "stereoscope" is quite inappropriate to an instrument exhibiting this effect alone.

Sir D. Brewster calls upon me to publish the letter I alluded to in my former communication, or "any part of it that has the least reference to the stereoscope." The correspondence, consisting of my letter and Sir David's reply to it, dated Nov. 3d, 1832, would be too long for insertion here. From the former I extract the following passage:

"I propose in the ensuing session of the Royal Society to present two papers—one on the acoustic figures, of which I gave a short account at the meeting at Oxford, and the other on binocular vision, in which I shall describe a series of very curious optical illusions, which I believe to be perfectly original."

But Sir D. Brewster, not content with disputing my claim to be considered the inventor of the stereoscope, denies, even if that were to be admitted, my claim to the discovery of the principle upon which it is founded. The real fundamental principle of the stereoscope is that clearly stated in my earliest announcement—namely, the apparent reproduction of a solid object by simultaneously presenting its two perspective projections, artificially delineated, one to each eye. I have yet to learn that any philosopher, either ancient or modern, had made this discovery before me, or had even nearly approached it. What Sir D. Brewster assumes to be the principle of the stereoscope is very different to this, and his endeavor to show that the facts he has alluded to were already known to Euclid, Galen, Porta and Aguilonious, does not at all affect the point at issue. I shall not enter into any discussion on this collateral and comparatively unimportant subject, but proceed to show that Sir David, when he was uninfluenced by his present feelings, took a very different view of the originality of the principle in question, even when generalized so as to include the phenomena of the binocular vision of real objects than he now does.

In the *Transactions of the Royal Society of Edinburgh*, vol. xv., part 3, 1843, he says:

"In prosecuting this subject, my attention has been particularly fixed upon the interesting paper of my distinguished friend, Prof. Wheatstone, on some remarkable and hitherto unobserved phenomena of binocular vision. It is impossible to over-estimate the importance of this paper, or to admire too highly the value and beauty of the leading discovery which it describes—namely, the perception of an object of three dimensions by the union of the two dissimilar pictures formed on the retinæ."

When the originality of an invention of Sir D. Brewster's was formerly disputed on somewhat similar grounds to those on which he has now impugned mine, he said, in words which have some present applicability:

"It has always been the fate of new inventions to have their origin referred to some remote period; and those who labor to enlarge the boundaries of science, or to multiply the means of improvement, are destined to learn, at a very early period of their career, that the desire of doing justice to the living is a much less powerful principle than that of being generous to the dead."—*Treatise on the Kaleidescope*, p. 137.

A public journal is not the proper place to enter into a public controversy on points of scientific theory, but I cannot allow Sir D. Brewster's assertion that he has "given the true and demonstrable theory of the stereoscope, after Mr. Wheatstone had wholly failed and acknowledged his failure," to remain unnoticed. It is true that I have stated, and still believe, that there are some points requiring further investigation; but I venture to affirm that Sir D. Brewster has done nothing to advance our previous theoretical knowledge of the subject; and many of the views he has brought forward regarding the philosophy of vision, I hold to be manifestly erroneous. In his recent work, and elsewhere, he misrepresents my facts and conclusions in a most extraordinary manner; and he attributes to me, without the slightest foundation, an hypothesis which I never for a moment maintained, and which I utterly repudiate. He makes no mention of some of my most important results, and when he does borrow from my memoirs, unless he has a depreciating remark to make, he omits all mention of my name; and further, he entirely ignores the memoirs of those eminent writers who, since my first publication, have treated of the stereoscopic phenomena; and the names of Bruecke, Tourtual, Prevost, Moser, Volkmann, Dove, Rogers, Serre, &c., who have all brought much thought to bear upon the subject, are not even once mentioned in his pages.

I am, sir, your obedient servant,
Athenæum, Oct. 29th, 1856. C. Wheatstone.

No. V.

To the Editor of The Times.

Sir,—If you can spare me a few lines to correct some of Mr Wheatstone's very incorrect statements, and also to add some new information on the history of the stereoscope, I shall not again trespass on your columns.

1. In his first letter in *The Times* Mr. Wheatstone refers to my correspondence with him in 1832, as proving that I then knew that he had invented the stereoscope. Knowing that I never heard of the stereoscope till 1838, I challenged him to publish the letter, or any part of it that mentioned the instrument. He has declined to do this, and has substituted a paragraph of his letter to me which neither alludes to the stereoscope nor anything that has least resemblance to it. My answer to that letter, which I again call upon him to publish, could, therefore, contain nothing on the subject.

2. Mr. Wheatstone asserts that I announced, "that unless additional evidence were brought forward, I would continue to place Mr. Elliott's claim above his," and that I further required a proof that he had constructed a stereoscope at a particular time. I deny that I made any such announcement, or any such requisition; I consider Mr. Elliott as an independent inventor and constructor of the stereoscope. I believed, on the authority of his letters, that he had anticipated Mr. Wheatstone in the conception of the instrument, till I read the passage from Mayo, and I think your readers will share with me in the surprise that so remarkable an invention as the stereoscope, if actually constructed and exhibited in 1832, should have remained six years in Mr. Wheatstone's desk and make its appearance before the public only in 1838!

3. In reference to the theory or explanation of stereoscopic phenomena which I published in 1843 in repudiation of Mr. Wheatstone's views, I have only to state that it has remained for thirteen years unopposed by himself or any other person; that he had annual opportunities of discussing the question with me before distinguished members of the British Association; and that in 1852, when he was specially bound to defend himself, in his second paper on the stereoscope, in the *Philosophical Transactions* for that year, he was silent on that subject. In 1843 I demonstrated the laws of visible direction, visible position, and visible distance, and I assert that "by means of these laws all the phenomena of erect vision from an inverted image of the single vision of points, of the vision of plane surfaces and solids, and of the conversion of two plane pictures into solids or objects in relief, may be calculated with as much accuracy as we can compute the positions of the heavenly bodies" (*Life of Newton*, vol i, p. 235), and I challenge Mr. Wheatstone to discuss these or any other points to which he has referred in the philosophical journals of the day. I call upon him also to defend the method of taking binocular pictures which he has sanctioned, and which I have proved to be as erroneous in science as it is truthless in art.

4. I have stated, and Mr. Wheatstone denies, that Aguilonius and others anticipated him in the principle of the stereoscope. The principle of the stereoscope consists of two facts,—the one,

that the pictures in each eye are dissimilar: and the other, that when two objects or points upon a plane surface are united by squinting, that is by looking at a point nearer the eyes, they are seen as one object or point at the place or convergence of the optic axes; or, to express it differently that difference of distance from the eye or relief, is obtained and measured by the different distances of objects or points united by squinting, or any other process. The first of these facts Mr. Wheatstone claimed as his own discovery; but I have proved, and he does not now deny it, that Aguilonius and others had anticipated him in this discovery. With respect to the second fact, it is distinctly established by Dr. Smith, of Cambridge, in his *Optics.* (Rem. vol. ii, p. 86, fig. 161.) He places two candles at the distance of two or three feet from the eyes, and after uniting them he sees a single candle nearer his eyes. If the two candles are made to approach one another, the single candle recedes from him, and if they are made to recede from one another, the single candle approaches to him. He makes the same experiment with the same result, with the points of a pair of compasses, thus demonstrating by direct experiment the second principle of the stereoscope, the different distances of similar points in binocular pictures give, when united, different distances from the eye of relief. Dr. Smith (*Id.* vol. ii. sec. 977,) has proved the same thing, when the eyes are converged to a point beyond the points of the compasses, as in M. Faye's stereoscope. In place of taking compass points, Mr. Elliot took two moons at a certain distance from each other, and two crosses at a different distance, and two spots of water at a third distance, and he united those, as Dr. Smith did, and thus saw the three objects in relief forming a rude landscape, decidedly the first landscape seen in relief by any stereoscope.

5. Another candidate for stereoscopic discovery, (or bathoscopic, as the author calls them,) has appeared in Canada. In the *Toronto Times*, of October 8, sent me by Mr. George Maynard, he claims to be the first person who published anything on the peculiar phenomena of binocular vision and the principles of the stereoscope.

"In the year 1838," he says, ("If I mistake not) at a meeting of the British Association, the attention of philosophers on the continent of Europe was invited by Professor Wheatstone to some remarkable phenomena of vision with two eyes; and a small apparatus, the stereoscope, was presented in illustration of his experiments."

"It did so happen, however, that in the year 1836 (two years previous to the period afore-mentioned) a protracted article signed "Theophilus," and involving a detailed enunciation of binocular phenomena, with their bathoscopical results, was published by me in the *Royal Standard*, daily paper, at Toronto, and such is (in my opinion) the misapprehension generally existing on this interesting subject, that (even after twenty years of additional information) I am encouraged to hope that the remarks then published, with a little amplification, will not prove unacceptable to the generality of your readers."

Such is the commencement of a long and very interesting article, occupying a whole page of the newspaper, and shewing, if the paper by 'Theophilus' contains the same truths, that Mr. Maynard was in 1836, possessed of the true principles of the stereoscope, and had produced relief by uniting objects at different distances on a plane surface. His observations on the vision of points are admirable, and in entire harmony with the views which I have published.

I am, Sir, your most obedient servant,
D. Brewster.
St. Leonard's College, St Andrew's, Nov. 1, 1856.

NO. VI.

To the Editor of The Times.

Sir,—The following observations, in reply to Sir D. Brewster's third letter, will, I trust, close the discussion which he has opened in your columns:—

1. Sir D. Brewster, who, to distract attention from the real questions at issue, seems desirous to involve me in a contest of mere words, misrepresents what I said respecting our correspondence in 1832, when he asserts that I referred to his correspondence with me as proving that he then knew that I had "invented the stereoscope." What I actually stated in my first letter to *The Times* was, that I could "show from our correspondence that he was aware, so early as 1832, that at that time I was preparing for publication my memoir on the subject." In my second communication I justified this statement, by giving an extract from a letter sent by me to him, the receipt of which letter was acknowledged in a reply, dated November 3, 1832. In the passage quoted, I stated my intention of presenting to the Royal Society a paper "on binocular vision," in which I said "I shall describe a series of very curious optical illusions, which I believe to be perfectly original." The memoir thus announced to Sir David subsequently appeared in the *Philosophical Transactions of the Royal Society*, under the title, "On some remarkable and hitherto unobserved phenomena of binocular vision," and it contained a full description of the curious optical illusions exhibited by the stereoscope. Sir D. Brewster was therefore certainly aware, in 1832, that I was then preparing my memoir on the phenomena of binocular vision, however afterwards he might have forgotten the circumstance.

2. Notwithstanding Sir D. Brewster's denial of his requiring a proof that I had constructed a stereoscope in 1832, he still affects to doubt its existence at that time. "I think," says he, "your readers will share with me in the surprise that so remarkable an invention as the stereoscope, if actually constructed and exhibited in 1832, should have remained in Mr. Wheatstone's desk, and make its appearance before the public only in 1838!" If any justification of the delay in publishing my complete results, after I had announced the general facts, be necessary, it may be found in the following circumstances. Between the periods referred to, I published, in 1833, my memoir "on the figures of vibrating surfaces," and, in 1834, my memoir "on the velocity of electricity and the duration of electric light," which gained for me admission to the French Academy of Sciences; from 1834 to 1838 I was engrossingly engaged in those experiments relating to electrical phenomena to which my last investigations had led me, and from which resulted all my inventions connected with the electric telegraph. It is not much to be wondered at, that, during this interval I was obliged to defer to a future time the consideration of subjects of less immediate interest, some of which I have not even yet had the opportunity of resuming.

3. I have hitherto avoided entangling myself in the meshes of controversy with so disputatious an antagonist as Sir D. Brewster. I have always thought myself more usefully employed in investigating new facts, than in contending respecting errors which time will inevitably correct. I deny Sir David's right to challenge me to a combative discussion; but since nothing else will satisfy him, I accept his defiance, and will undertake to point out in the pages of the *Philosophical Magazine*, the numerous misapprehensions and misrepresentations he has made with regard to my researches on the subject of binocular vision, and the errors into which, I conceive, he has himself fallen.

I was far from thinking, when answering an anonymous letter in the columns of *The Times*, that it had emanated from the same source from which had proceeded all the attacks which have, with reference to this matter, during the last four years been directed against me; but I cannot regret the opportunity which that circumstance has afforded me to correct, in the most efficacious manner, a few of the most prominent of the mis-statements made. I have limited my replies to those points only which Sir David has brought forward on the present occasion; others of equal importance, remain to be considered elsewhere.

4. Sir D. Brewster still insists that Aguilonius and others have anticipated me in the principle of the stereoscope. None of the particular facts which Sir David has brought forward, constitute, either taken by themselves or together, the principle of this invention, which I maintain to be what I stated in my last letter. No invention ever has been made, nor any invention ever will be made, with respect to which something involved in it has not been said or done previously; but it is uncandid to allege that such or such a thing is the principle of a discovery, leaving out of consideration those superadded ideas

which, in combination with what has been previously known, constitute its originality.

But even with regard to the fact that when an object of three dimensions is viewed while the optic axes converge, two obviously dissimilar pictures are projected on the two retinæ, however strange it may now appear that it should ever have been overlooked, I have not yet been able to find a distinct enunciation of it in any author before the date of my first memoir. Euclid, and the subsequent writers alluded to by Sir D. Brewster, merely show that when a solid body, as a sphere or a cylinder, is seen with both eyes, under certain circumstances, a little more of its right side is seen by the right eye, and a little more of its left side by the left eye.

Sir D. Brewster, indeed, endeavors to prove that Aguilonius was perfectly acquainted with the fact that dissimilar pictures or perspective projections of an object are seen by the two eyes; but he completely misrepresents what this author says. In the chapter alluded to by Sir David in his second letter, and more fully referred to in his work on the stereoscope (pp. 11–13), the purpose of Aguilonius is to show that when the optic axes are directed toward an object obliquely, the visual rays proceeding from the object to the centres of the eyes, make, in consequence of the unequal length of the axes, a greater angle to one eye than they do to the other, so that the object is seen of a different magnitude by each eye; and he endeavors to explain the cause of distinct single vision in the case of the dissimilar magnitude to each eye of an object, when viewed obliquely, by assuming a corrective power to exist in the mind. Aguilonius does not in any way refer to dissimilar figures, and he expressly says that in the direct view—that is, when the eyes look immediately forward, and the optic axes are equal in length —the optical pyramids formed by the visual rays are similar.

Sir D. Brewster's assertions that Aguilonius in this chapter was treating of "the union of dissimilar pictures in each eye by which a solid body is seen," and was endeavoring to explain "why two dissimilar pictures of a solid, seen by each eye, do not, when united, give a confused and imperfect view of it," are therefore quite erroneous. The passages, even as quoted by Sir David Brewster, would be alone sufficient to show this; but he has rendered them unintelligible by interpolating references to a diagram which the author does not give, and which is incompatible with his text. Besides this, Sir David misleads the reader by stating that the passages he quotes occur in the first (second) book of the learned Jesuit's work "where he is treating of the vision of solids of all forms (*de genere illorum quæ* [illegible] *nuncupantur*)." Now the title of the book is *De Radio Optico et Horoptere*, and it does not in any part treat of the subject Sir David names; the sentence above quoted only incidentally occurs in the course of a proposition, and the Greek word, instead of signifyinging solid bodies, means, as Aguilonius himself explains, certain hypothetical forms, which he elsewhere calls optical pyramids, having the vertices of their angles in the eye, and their bases on the surfaces of the objects; and he further says that this form (*corporea forma*) is a cone when the base is a circle, and a pyramid when the base is a triangle, a square, or a polygon.

It is evident that Sir David has looked upon Aguilonius through a pseudoscope.

5. With reference to the new candidate whom Sir D. Brewster has brought forward, it is sufficient to observe that the date given is three years subsequent to the public announcement of my discovery. There is nothing in the article in the *Toronto Times* which enables me to distinguish what the author now additionally puts forward from what he originally published. But still I can see nothing in the experiments related, which is not to be found in the works of Bishop Berkeley and Dr. Smith, who both wrote more than a century ago. But since the Canadian author makes no allusion to the facts and conclusions of these eminent writers, he must, I suppose, according to the law which Sir D. Brewster would enforce, be considered, "in the history of science," as their independent discover.

I am, Sir, your obedient servant, C. Wheatstone.

Athenæum, Nov 11, 1856.

From the Jour. of the Phot. Soc.

PRIORITY OF INVENTION OF THE HONEY PROCESS.

To the Editor of the Photographic Journal.

January 1857.

Sir,—The letter of Mr. Maxwell Lyte on the Honey Process in the last Journal requires some notice. My knowledge of Mr. Shadbolt and Mr. Lyte arises solely from their writings.

Having practised the preservative honey process from the time of Mr. Shadbolt's first communication, I was startled when Mr. Lyte lately wished to claim the "priority in the application of honey to the surface of collodion plates," as I had no recollection of the latter's teachings.

The perusal of their writings in this journal and the 'Notes and Queries' since June 1854, will enable any one to decide upon the claims made by Mr. Lyte. These writings prove first, that Mr. Lyte's original idea applied solely to an instantaneous process of exalted sensibility which might be retained for a short time—a few hours; while Mr. Shadbolt's original purpose was the very opposite, the preservation of plates in a complete, though diminished, sensibility for a lengthened period—for days and weeks. Their writings prove, secondly, as Mr. Lyte at that time unhesitatingly acknowledged, that they were independent discoverers as to the application of honey to collodion plates, although for different objects, and by means proving different chemical effects.

Mr. Lyte considers that I have been guilty of misrepresenting him by a partial quotation. My answer is as follows. The entire sentence alluded to by Mr; Lyte was:—"At the same time it is quite clear that Mr. Shadbolt is a discoverer quite as independent as myself, *though I believe I can lay claim to priority of publication*." The words in italics were not quoted by me, simply because, while the priority of *printed* publication belongs to Mr. Lyte, that by itself could not in any way prove the priority of invention. No falser logic could be used than that reiterated by Mr. Lyte, that as he first published, therefore he was the first inventor.

The facts connected with publication prove rather against Mr. Lyte than in his favor. He published first in the 'Notes and Queries on June 17th, 1854. Mr. Shadbolt at the Photographic Society Meeting on the 6th of July following, "explained and demonstrated a method of taking pictures on collodion plates rendered sensitive some time previous to exposure." In his detailed paper in the Journal of the same month he states, that "*for many months past* I have devoted much time and attention to devise the means of removing the only drawback to the use of collodion for lanscape operations;" and he then preferred and recommended honey. It is therefore beyond any dispute, when these dates are observed, that Mr. Shadbolt must have been experimenting with honey when Mr. Lyte first wrote. He does not state the time during which he had been engaged, but mentions that he had made many experiments. To repeat—unless these gentlemen had drawn their inspiration from a common source, it is beyond all cavil that they had been employed at the same time, although unknown to each other, (to use Mr. Lyte's words), "in experimenting in so completely the same line." The experiments were analogous, but with different objects. At what precise minute of time the great efficacy of honey became known to either of these accomplished photographers cannot be proved by these *publications*, but by the evidence of friends, with whom they may have had distant communications, or such other satisfactory proof as circumstances would show to be decisive. In the absence of some such evidence being offered, it would be quite Quixotic in the Council of the Society to interfere. I might retort on Mr. Lyte that he had been guilty of misrepresenting by partial quotation. In his letter of December 1854, he said, as above quoted, that it was certain that Mr. Shadbolt was a discoverer quite as independent as himself; while in his last letter he only speaks of his being "*probably* an independent discoverer." This is an odd inconsistency; but Mr. Lyte cannot get rid of his original explicit admission, and recal his plea of guilty, unless he now prove something to stultify what he then admitted.

But, if it could be ascertained who first thought of honey, that would not settle the question of the want of applying it for the long *preservation* of plates. Let the reader study carefully Mr. Lyte's original letters, and it is believed he will be satisfied that he applied the honey, combined with nitrate of silver, to produce an instantaneous process; and that, although he spoke of plates keeping for some hours, that only referred to the instantaneous effect remaining during that time, and not to the long-lasting preservative qualities of honey. Mr. Shadbolt having in view an opposite object, abjured the use of silver, and also washed off the free nitrate. Without any doubt, Mr. Lyte did not then expressly inform photographers that the application of honey would enable them to preserve plates for a lengthened time; and if the Society did interfere, they would (in order to justify the claim Mr. Lyte now makes of priority) require him to prove that he in some particular way made public, that his process secured lasting preservative, as well as instantaneous effects, and that *before* he could have seen Mr. Shadbolt's communication of July 1854. It is vain for Mr. Lyte to rest his claim on the mere priority of publication; and unless he has something as yet unknown to reveal, and produce conviction, he must be content to allow Mr. Shadbolt to wear the laurels, which most photographers think he was fairly won.

Mr. Lyte refers to the practice of photographers of high repute. It is a pity they do not give more publicity to their experiences. Every one, it may be so expressed, rides for a time his favorite hobby. Some have followed steadily all along the principle of Mr. Shadbolt's first formula, and worked it in the simplest and least laborious manner—objects so much to be desired by amateurs. The present correspondence may do good, if it should draw attention to the honey process. What other one combines so much simplicity and ease? One example is worth many homilies. An old friend surprises you, and asks you to visit with him the scenes of his childhood, and the resting-places of those whose memories he most valued. In less than an hour you have begun and completed all that was necessary to bring back various pictures. The experience of many proves that, with less labor than is required for any other process, great, and almost unerring certainty can be obtained by a careful manipulation of honey plates, and that they can be kept with safety for eight or ten days. The practice of some shows they can be kept longer, but the shorter period is amply sufficient for the general purposes of a journey. One especial benefit is, that if the weather makes it necessary to keep the plates for some time after the preparation, an examination will show whether there be any deterioration. If it has begun, their place can be quickly supplied. The great use of the honey process is, to enable amateurs, especially, to indulge their tastes in the attraction province of landscapes; and when the facility and quickness of preparation are considered, it is doubtful if a dry collodion process would be preferable for a journey to the country. A great deal has been too often most erroneously said about the difficulty of protecting honey plates from injury: no greater care is required, and less labor is necessary, than in other plans. Success in any process must be the result of that system and care which will also make the honey process completely satisfactory. One great advantage possesses in the quickness of development. All dry processes seem to require hours. The honey plates only need a few minutes; and the object of a journey is quickly ascertained, and rapidly remedied if failures occur. Amateurs painfully despond on admiring the large and beautiful pictures by those who enjoy the advantages which a movable and expensive apparatus can command. But, fortunately, the pleasant indulgence of the art is not dependent upon such appliances. The charms of a fine landscape can be beautifully portrayed on a moderate space, when aided by a fine atmosphere and good taste. He who has leisure to wander among fine scenery can be certain, with a bright sun and the honey process, to bring away pictures full of beauty; and undoubtedly, in this uncertain climate, it is a great matter to know that the plates prepared by Mr. Shadbolt's formula can be used with certainty, and with equally good results, after the lapse of hours or days. Uncertainty and disappointment would undoubtedly follow by adopting for like objects Mr. Lyte's original plan of using nitrate of silver along with the honey.

I am, yours faithfully,

J. S.

From the Journal Phot. Soc.

THE CAMERA CAMPESTRA.

To the Editor of the Photographic Journal:

Northwood, Hanley, Staffordshire, Dec. 27, 1856.

Sir,—The apparatus which I had the privilege of exhibiting upon the occasion of our Society's Soirée on the 17th, having been honored with mention in the report of that evening's proceedings, permit me to request that you will kindly publish the subjoined description of an instrument which offers every facility for successful out-door operations on collodion, albumen, or paper. The camera I am describing has a dark tent attached to it and folding with its body; it can be erected, taken down, or removed from place to place with the greatest facility, and is so constructed that, when folded, it contains baths, trays, solutions, and glass or paper for an entire day's photography in the field.

By a peculiar and, I believe, hitherto unattempted arrangement for developing, the picture is brought out without risk of stains arising from the unequal action of the solution; and the focus is adjusted from the interior of the tent with the greatest ease, whatever may be the construction of focal distance of the lens. The admission of white light into the camera during the process of taking a picture is impossible, although an arrangement exists by which the operator is permitted to see *clearly* the progress of his picture through every stage of its production, his mouth and nostrils being at the same time relieved from the injurious effects of the vapors arising from the chemicals he is using. The thorough ventilation of the tent is provided for, and the operator works with ease and comfort in the hottest weather. The lens may be instantly covered or uncovered from the interior of the tent.

It will be urged, I know, and with justice, that the invention I am describing possesses only properties common to many of the excellent appliances of photography already intoduced by such men as Messrs. Newton, Archer, Ottewill, and a host of others; nevertheless I claim superiority for my invention in the following particulars:—

1. The readiness with which it may be put into working order in the field.
2. The means for thoroughly ventilating the instrument and expelling noxious vapors.
3. The ease and certainty by which pictures as large as 12× 10 may be developed without soiling the bottom of the camera, or the hands.
4. The arrangement by which the operator breathes freely the external air.
5. The advantage of being able to cover or uncover the lens at pleasure from the inside of the tent.
6. The cheapness, convenient form and extreme portability of the instrument, which packed with all the necessary chemicals, &c., weighs only a few pounds.

At the solicitation of many of my photographic friends, I have made arrangements with a manufacturer, who will be happy to supply my camera to any of my confréres who may desire to possess one of the few instruments that are really "workable" in the field, at a moderate cost.

Apologizing for so far intruding upon your valuable space,

I am, Sir,

Yours most faithfully,

Charles Alfieri.

The powers of photography have very recently been employed with great success in producing a number of fac-simile copies of the *codex argenteus* of Upilas, the oldest (fourth century) sample extant of the Gothic language, the great mother tongue of the whole Germanic stock.

From the Jour. of the Phot. Soc.

ON ENGRAVING PHOTOGRAPHS
On Glass and Porcelain, by means of Hydro-Fluoric Acid Gas.

BY THOMAS SIMS.

[Read January 8, 1857.]

Wishing to offer as much information as possible, without occupying too much space, I think I cannot do better than give the process of engraving photographs on glass, by means of hydro-fluoric acid gas, in the form of notes, which have been penned at various times, generally after making the experiments. Previous to this, however, it is necessary to give a general idea as to the mode by which I have taken the kind of photographs most suitable for the purpose. First then, the collodion I use is *thin;* it has as much alcohol as it will bear, adding æther only when it is too gelatinous, iodized with iodide of silver dissolved in an excess of iodide of potassium. The glass here is a desideratum, as it is not only necessary to obtain it free from striæ and specks, but its component parts will, I believe, occupy the attention of photographers in time to come as much as paper has done for calotype. I have given crown, sheet, and several kinds of plate-glass very fair trials, and, as yet, I find none to yield so readily to the action of the hydro-fluoric acid gas as British patent plate.

Some idea of the care I have taken to arrive at this conclusion may be perceived, when I state the manner in which I tested the quality. I have cut 9-inch plates of various kinds into four or six squares, putting each lot carefully apart; I have then taken one of each kind and marked it; collodionized and developed each with the same material, and photographed from the same model, such as a chalk bust or engraving, and have applied the hydro-flouric acid, in the same manner to each, and this two or three separate times; and in every case the patent plate showed itself to be most easily acted upon. Previous to putting on the collodion, and in order to cleanse the plate, I wash it in sulphuric acid and water.

Bath.—30 grs. of silver to the oz. of water, made in the usual way.

The time in the camera is of consequence: it must be *timed* to a nicety, and developed well. (See Notes).

The developing solution is made with different samples of protosulphate of iron, ¼ lb. of three or four samples, put together in rather a wide-mouthed bottle, and the crystals covered with distilled water, to which is added 2 drms. of acetic acid.

When a developing solution, fit for use, is required, take 1½ oz. of this saturated solution and put to it 6 ozs. of distilled water and 2 drms. of acetic acid. If this does not flow evenly over, add a drachm of alcohol; but if it can be done without, it is better, as the alcohol is liable to produce grey pictures.

I invariably fix with hyposulphite of soda; and too much care cannot be taken to get out the iodide of silver, (and the same may be said of the hyposulphite of soda), with abundance of water and a wash or two with ammonia and water, and this, again, washed away with water.

The plate must be dried with as much care as a daguerreotype, and in the same manner, from the top downwards, evenly and regularly; the water must not concentrate itself upon any particular part so as to dry in patches; for though the impression may pass through the burning process without showing the stain, it certainly will not stand the test of the hydro-flouric acid gas, for the stains themselves will be engraved!

It will be found that if the most minute particles of the iodide or hypo. remains in the impression after washing, it will turn *black* quickly while *burning*; and if heat be long applied the impression will evaporate altogether, and this at not a very high temperature. This is a fact that has so many times come under my notice, often to my sorrow, that I have been led to conclude, reasoning from analogy, that the hypo. must be the great enemy to the durability of paper photographs; for if a collodion film, which we have so much more power over in the way of cleansing, will yet, after all the washing, retain sufficient quantity of hyposulphite to be the destruction of the photograph, how much more is paper likely to do so!

Burning the Photograph.—The only requisites necessary for this purpose are, *boxes* of sheet *iron* or *tin* of various sizes, and a *stove*, the top of which easily becomes slightly incandescent, when the fire is lighted in it. The new boxes must be burnt to get rid of any grease in the iron ones, and of the tin and grease in the tin ones. They must be made a quarter of an inch larger than the size of the plate to be burnt in them; and they must also be rounded slightly at the bottom. If the first precaution be not taken, the box on cooling will contract and crack the glass. The reason for having the box a little rounded at the bottom is, to allow the operator to place the impression face downwards, which will enable him to stove the picture without having a cover on the box (provided the room be free from cold draughts), and to see how the process goes on; this may be easily done by holding the box with pincers, in such a position as to get the reflected ray to the eye from the back of the impression; for as the silver becomes reduced it assumes a mirror-like appearance.

When speaking of the reduction of silver, it is associated in most minds with the idea of great heat, when the reduction is said to be by heat; this is liable to mislead: a great heat is not only unnecessary but objectionable; a dulled heat is the most required, for a low heat and a longer time does the work more effectually. (See Notes).

That the silver does become so reduced is very curious; it shows the metallic deposit to be in a peculiar state, and I imagine that the contraction of the film must take a mechanical part in the operation.

If the operator allows the burning process to go on slowly, (say half-an-hour or more, as it varies with different impressions,) he cannot fail in this part of the process.

When sufficiently burned, push the box, containing the picture, to a cool part of the stove, and, when cold enough to be taken hold of by the hand, the plate may be removed, and placed in a plate-box.

It is better to engrave the picture as quickly as possible, or a film of oxide will soon damage it if not used.

Materials and Apparatus for the application of Hydro-fluoric Acid Gas:—

Fluor spar.
Common sulphuric acid.
A leaden pan and cover.

Grind the fluor spar into fine powder, and put ½ oz. into the leaden pan, upon which pour 2 ozs. of common sulphuric acid, and stir with a leaden rod. The size of a pan for a picture 3¼×2¾ inches should be 4×3 inches in width and breadth, and 4 inches in depth.

The frames holding the plates over the vapor should be waxed or varnished, otherwise the wood absorbs the vapor; and it acts upon the edges of the plate before it receives the vapor from the pan, which should be placed upon a stand high enough to admit a spirit-lamp underneath. The stand holding the pan of hydro-fluoric acid should be placed upon the hob of a kitchen range, when there is a fire and the draught generally good, as this will carry away the fumes, which are suffocating unless the operator is fortunate enough to have a laboratory with all the requisites.

If an ounce or so of water be used with the sulphuric, acid in the pan with the fluor spar, the spirit-lamp will not be much required, but the action is so rapid that I prefer adding water some time previously, and letting the mixture become cool before putting in the fluor spar. Using the spirit-lamp and not adding water gives the operator most control, and is the method I have adopted; but in one or two cases, when water was added to raise the temperature, there was so much energy as to eat half through the glass. But this plan might really prove the best, provide it could be so modified as to be a little more manageable.

When the hydro-fluoric acid is made to act upon the plate, it permeates the transparent coat first, except in the false action (mentioned in the notes); and in proportion as the silver, forming the opaque parts of the picture, increases in density from the half-tone to the high-light, so is the time the acid takes to act; the high lights being the most opaque, resist the attack longest. When this part yields to the action of the acid, the whole of the picture is loosened from the surface of the glass, and any further action of the hydro-fluoric gas tends only to destroy the engraving which has been made, so that a few seconds will form an engraving, and a few seconds more, if the action be continued, will entirely destroy it, by eating too far into the body of the glass. It will thus be seen how great a nicety is the timing of the plate over the hydro-fluoric gas; it varies according to the nature of the glass, and in the strength of the impression and of the gas, the latter being regulated by the size of the flame of the spirit-lamp, so that, like the timing of a picture in the camera, it would be difficult to state any time nearer than from 5 seconds to 5 minutes.

The best plan is to take the plate up after about ten seconds, and if the picture has a uniform grey appearance by transmitted light, and a prismatic appearance by reflected light, there is every reason to suppose it will bear the action no longer. It is now to be washed off with clean cold water; but should the plate not be sufficiently cool for this, use warm water, and wipe dry. The engraving will be distinctly seen, and if strong will be easily felt; but if only a surface impression, it will be necessary to hold the glass in the same position as you would a daguerreotype, that the picture may be seen.

It is evident that this paper, so far applies to direct camera pictures; the lights of the picture being formed by the metallic deposit, the process of engraving being founded on the well-known resistance of silver, as well as other metals, to the action of hydro-fluoric acid on the one part, and the affinity which that acid has for glass on the other. If, therefore, the law holds good, the transparent parts of the proof will be bitten out, and the lights of the picture will be untouched, or nearly so. This is the kind of proof required to produce a plastic cast in relief, from which a plate for the press may be obtained by the electrotype process.

To apply this process to *porcelain*, upon which material a direct picture is wanted as a permanent article, the process is the same, but the requirements differ.

Some idea of the plan may be obtained when I state the necessity which brought it about; it was the desire to burn-in a photograph on *enamel* or porcelain: but a positive collodion picture will *not* sink into hard enamel; it will burn away before the enamel obtains heat enough to become soft. It will sink into soft enamel. The result, however is so like a daguerreotype, that I did not think it worth the trouble of continuing the work.

When a collodion photograph is taken from a negative on white porcelain, the metallic deposit forms the dark part of the picture, and the white surface of the porcelain the whites of the picture.

It is impossible to obtain good collodion pictures on unglazed porcelain, and the photograph will not stand the heat, as before mentioned, which is required to sink-in the impression, so that to make the picture pass through the kiln, it is necessary to go over the photograph with enamel colors.

On engraving this kind of picture on porcelain, I have found, especially with Mr. Minton's beautiful white tiles, that when the acid had acted too much, the picture still retained its hold of the porcelain, and did not wash off as it does after the same action on glass; and when it was dried, all the glaze was found to be eaten off, but still the lines of the photograph were fixed as fast as ever. This is worthy the attention of persons who are anxious to apply photography to porcelain.

The point of interest, however, for the photographer is the following: If the porcelain is acted upon properly, those parts under the metallic lines are protected from the action of the acid while the other parts are acted upon, so that the picture, after being engraved, is formed by the dull surface of the unglazed porcelain on the one part, and the brightness of the glazed on the other part. This is sufficient to convince me that if we had white tiles "flashed," as it is technically termed, with a dark vitrifiable color, we should be able to obtain an engraving with hydro-flouric acid, *a white picture on a dark ground*, the acid eating out the bare parts of the proof, while those protected by the metallic deposit would retain the surface color.

NOTES.

"1. This acid acts most uniformly when there is a large proportion of sulphuric acid covering the bottom of the pan.

There seems a very strong analogy between the working of this gas and the obtaining a deep sensitive coat with the iodine on the daguerreotype plate.

"2. Whenever the hydro-flouric acid acts through the silver, the impression is only on the surface, and is analagous to a weak collodion positive—if the impression engraved is a direct positive—and in appearance is very similar to a weak daguerreotype: as an *engraving* it is worthless. In the other case, when the operation is successful, and the silver has been so reduced as to resist the action of the hydro-flouric acid, the picture appears in the form of a negative on the glass; everything which, previous to engraving, was white, will now appear the reverse, and when seen in a proper light, the picture has much the effect of an etching on steel; and when a hard substance, such as a needle or pin, be passed over it, the lines may be sensibly felt.

"3. The lines of demarcation, which can now be drawn between these very different results, are at present ill-defined, but are accumulating so fast as to promise that we shall be able to work with as much certainty as in iodizing a daguerreotype plate.

"4. The characteristics of an impression likely to turn out a superficial engraving, are these:

A feeble and grey impression.
A solarized impression.
An undeveloped impression.

If the impression be burnt too suddenly or too much, the result is the same. The reason why an over-burned picture is likely to be affected by the hydro-flouric acid through the silver, or not engraved at all, is probably because the film of collodion becomes carbonized; the silver also, under these circumstances, becomes granular and porous, and will rub off with a brush; the film of carbon will, therefore, resist the action of the acid as much, or more, than the granular silver.

"5. When the opaque parts of the impression are firm and solid, and the blacks rich and transparent,, without a stain or mottle from the effects of impurities, either left by the chemicals used or from the want of cleansing in the plate, the operator may depend upon a legitimate engraving, the only question being the *time* of exposure to the action of the hydro-flouric acid gas; and in this part of the process nothing but experience will avail, as it depends upon a number of secondary conditions, which the novelty of the work has made impossible hitherto to reduce to rule.

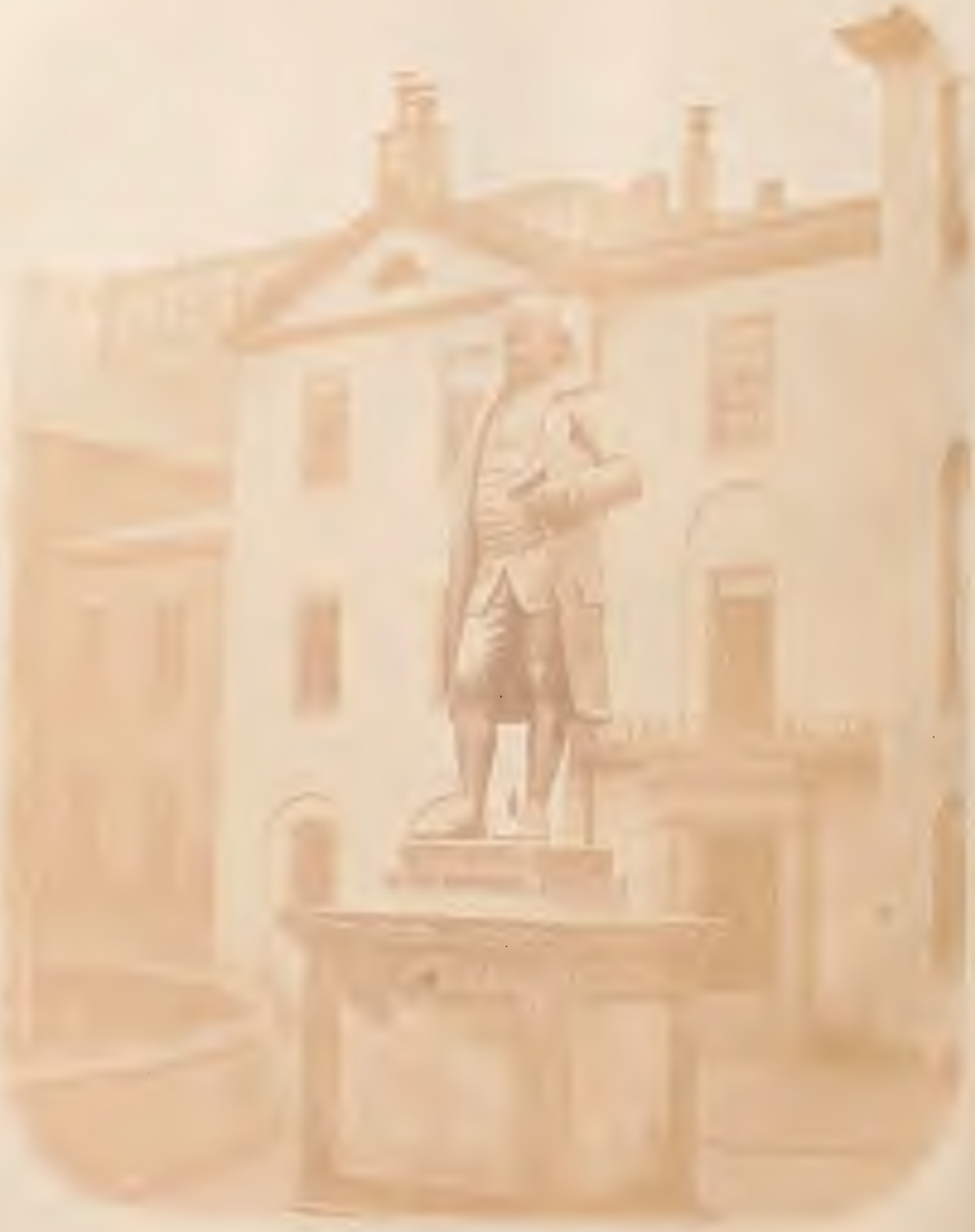
"6. When the effect of the flouric acid seemed very sudden, it immediately reminded me of the early days of daguerreotyping, when pure and undiluted bromide and chlorine was attempted, and I added three or four times more common sulphuric acid than was necessary for the evolution of the flouric acid.

"7. The first portion of hydro-flouric acid which rises in vapor is seldom or never of any good in the way of engraving; it destroys the picture without showing any lines of drawing; the same happens if the mixture is used too long; the latter may be easily accounted for, the former not so. Dr. Ure, in his 'Dictionary of Chemistry,' suggests it to be silicated flouric acid, supposing the fluor spar experimented with might contain a portion of silica. This is also a sufficient reason why the most paltry experiment should not be conducted with glass vessels; glass covers should *not* be used to the leaden pan for the same reason.

"8. If the proof becomes oxydized by lying about exposed to the air, before or after *burning*, it will not resist the action of the flouric acid.

"9. If, in *burning*, the plate assumes a dark and charred appearance, it *never* becomes white again; but will be completely destroyed by further burning, and is occasioned by some salts which should have been washed out.

"10. The difficulty of obtaining a strong metallic deposit on the lines of the drawing without getting the transparent parts of the picture grey, might suggest itself as a great objection.



FRANKLIN MONUMENT—BOSTON.

Negative by Whipple & Black.

In answer to this, I have found it quite possible to augment these lines to a great extent, provided the impression is perfect, by the use of bichloride of mercury and ammonia; chloride of gold to precipitate it; another weak wash of bichloride of mercury; and this acted upon by a weak solution of iodide of potassium and common water, is used after each application to keep the precipitate from the transparent parts of the film. After which, a thirty-grain solution of nitrate of silver is poured evenly over the plate and washed with water; the plate is then exposed to the *light*, when the metallic parts turn intensely black, and the lines become so *raised* that it will itself yield a plate by the electrotyping process."

OUR ILLUSTRATIONS.

The first in this number is a copy of a drawing, by Messrs. Whipple & Black, of Boston. The second—also by the same artists—is a view of the new Franklin Monument.

The statue of Franklin was the work of Greenough, the sculptor. It is of bronze, and of a golden hue, which time will subdue and modify. This work, modelled by an American artist, was executed throughout by American mechanics, and is a pleasing specimen of the perfection to which art and skill have been carried by our countrymen. It was cast at Ames's foundry, Chicopee, Mass. The weight of metal employed was about 2000 pounds. The figure is eight feet in height, and the total altitude of the group, including the completed pedestal, is twenty-seven feet. The whole cost of the work will be about $10,000. This sum was raised by subscription. A committee was formed by the members of the Charitable Mechanics' Association, to which was united a committee of private citizens, to whom was entrusted the task of raising, by voluntary subscription, the necessary amount. The statue, completed under their auspices, was given in charge of the Massachusetts Charitable Mechanics' Association, by whom it was presented to the custody of the city, the assocciation, in case of the barely possible necessity of a removal at any future time, resuming charge of the work.

The formula by which these illustrations are printed is the same as for those for February, with the exception of the salting solution. The paper is that of Canson Frere, and required a salting bath of double strength—180 grains to 1 gallon of water.

One of the most important objects in giving photographic illustrations in our *Journal*, must not be overlooked by our readers. It will be remembered that we have stated heretofore that our object was to present, through them the various formulas for printing in general practice, or published, in order that our readers might judge of their respective merits. Bearing this in mind, our subscribers must not expect at all times those perfect results which are attained by those who adopt one principle of manipulation and follow it continually. Toning six pictures at a time, and toning fifty are very different affairs. We think that the majority of the photographs in this number, are quite fair representations of the Art under the peculiar circumstances of rapid manipulation and experimental formulas.

From the Jour. of the Phot. Soc.

METHOD OF COPYING PAINTINGS, &c., WITH A COMPOUND LENS.

To the Editor of the Photographic Journal:

Exchange Arcade, Manchester, Dec. 26, 1856.

Sir,—In a letter which I addressed to you respecting the pictures sent for your Society's Exhibition, I ought perhaps to have stated that the portraits and copies of paintings, and the two engravings were taken with a Ross's compound lens, of about 4 inches diameter.

As it is usually considered almost impossible to make correct copies from the flat surface with a compound lens, it may be interesting to you and the readers of the Journal to be informed how I have obtained the perfect flatness of field with the lens employed. In copying it is usual to put in the stop intended to be used, and then to obtain the focus of the object to be copied as accurately as possible, the centre of the object claiming chief attention. It will be found that if the object is put in correct focus at about one-fourth its diameter from the outer edges, and the stop then placed in the lens, the copy will be clearly defined in every part.

By the ordinary method, when a very small stop is used, it is almost impossible to focus correctly, especially in a dull light; but by adopting my suggestion, we have the advantage of the full aperture of the lens to focus by, and the stop being afterwards placed in the lens, it is unnecessary again to look at the picture in the camera (excepting to determine the length of exposure to be given), as the copy will be found to be absolutely correct.

If you should consider the above of sufficient interest, you are at liberty to make what use you please of it in the Journal.

I am, Sir,
Yours very obediently,
A. Brothers.

From the Liverpool Photographic Journal.

IMPORTANT EXPERIMENTS
On the Production of Latent Images.

BY W. R. GROVE, M.A., F.R.S., Q.C.

It was known years ago to some of the German savans, that a coin or medal placed on a smooth vitreous or metallic surface and electrised, would leave impressions on that surface which became visible when breathed on. From the latter peculiarity they were called "roric figures;" and attempts were made to fix them by exposure to vapor of mercury or iodine, but without success. Where the Germans failed, Mr. Grove has succeeded. "Believing, as I have for many years," he says, "that electricity is nothing else than motion or change in matter, a force and not a fluid, I have made experiments to ascertain whether similar effects take place in cases where electrical light is visible upon insulated surfaces only."

We give a brief sketch of the experiments, adopting Mr. Grove's description where it suits our purpose. Two plates of window glass, about three inches square, were dipped in nitric acid, then washed, and dried with a clean silk handkerchief, and coated on the outside with pieces of tinfoil a little smaller than the glass. A piece of printed hand-bill was laid between the plates thus prepared; the tinfoil coatings were connected with the secondary terminals of a Ruhmkorff's coil, and removed after a few minutes' electrisation. Now, "the interior surface of the glass when breathed on, showed with great beauty the printed words which had been opposite to it, these appearing as though etched on the glass, or having a frosted appearance; even the fibres of the paper were beautifully brought out by the breath, but nothing beyond the margin of the tinfoil." These impressions were fixed by holding them over hydrofluoric acid,—powdered fluor spar and sulphuric acid slightly warmed in a leaden dish.

"I now cut out of thin white letter-paper," proceeds Mr. Grove, "the word Volta, and placed it between the plates of glass. They were submitted to electrisation as before, and the interior surface of one of them, without the paper letters, was subsequently exposed in the hydrofluoric acid vapor; the previously invisible figures came out perfectly, and formed a permanent and perfectly accurate etching of ths word Volta, as complete as if it had been done in the usual mode by an etching ground. This, of course, could be washed and rubbed to any extent without alteration: and the results I have obtained give every promise for those who may pursue this as an art, of producing very beautiful effects, enabling Silhouette designs, or even fine engravings, to be copied on glass, &c."

We cite yet another experiment, as it brings photography into play. A plate on which the invisible image was impressed, was immersed in a bath of nitrate of silver, in the usual manner as for a photograph. "It was then held opposite a window for a few seconds, and taken back into the darkened room; and on pouring over it a solution of pyrogallic acid, the word Volta, and the border of the glass beyond the limits of the tinfoil, were darkened, and came out with perfect distinctness, the other parts of the glass having been, as it were, protected by electrisation from the action of light. The figures were permanently fixed by a strong solution of hyposulphite of soda."

From The Jour. of the Pho. Soc.

NORWICH PHOTOGRAPHIC SOCIETY.

The usual meeting of the society was held in the Council Chamber on Friday evening, the 2d inst, the President in the chair.

Mr. George Edwards, of Lowestoft, according to promise, read an interesting paper on "Dry Collodion," in which, after briefly stating the causes which render the discovery of a really good and rapid dry process on glass a desideratum for the photographer, he proceeded to consider the various methods at present known. These he divided into three classes:

1. Collodion simply washed.
2. Collodion protected by a preservative coating or varnish; and
3. Collodion covered by another sensitive surface.

Mr. Edwards then gave in detail the different processes falling under each of these heads, and exhibited the results of a multiplicity of experiments made by himself to test their comparative value. The glass plates exhibited were of great value, as showing clearly the merits of each process, the extreme care with which the experiments had been conducted, and the ingenuity of the operator; as many as nine or fifteen different experiments being contained on one plate, which had been subjected to but one exposure in the camera.

Mr. Edwards stated the result of his experience to be decidedly in favor of Taupenot's process, or some modification of it, and expressed his belief that the great desideratum of a rapid dry process would, ere long, be attained.

Mr. Edwards' camera, capable of taking pictures 8×6, excited much interest from its extreme portability, weighing, with the stand and a double slide charged with two prepared plates, only 5 lbs. 2 oz.

The thanks of the meeting were voted to Mr. Edwards.

Mr. Pulley exhibited some photographic copies, full size, of pencil sketches, portraits; amongst others, one of the author of the "Log of the Water Lily," and another of the crew.

Mr. Todd exhibited his portable camera, with contrivance for changing the papers in the slide, which, although not so light as Mr. Edwards', was quite portable, and capable of taking very much larger pictures.

The exhibition still remains open. Some fine snow scenes, by Mr. Stewart, have been added.

From the Jour. of the Phot. Soc.

NEW PRESERVATIVE PROCESS.

To the Editor of the Photographic Journal:

Bagères de Bigorre, Feb. 5, 1857.

Sir,—I beg to communicate to you a variation in the honey process which I have lately discovered, and which will, I think, prove valuable to photographers. It is a well-known property of gelatine, that when it is dissolved in hot water, allowed to gelatinize, melted, and again cooled, and this process repeated many times in succession, the jelly, at first stiff, gradually loses its tenacity, until at length it no longer sets, but remains liquid even when cool. The cause of this is a gradual change which comes over the gelatine itself, by which it would ultimately become converted into a new substance, white and crystalline, called by chemists glycocine or glycocoll; but the fact is, that before the formation of this substance, the gelatine undergoes previous changes, and it will be found to have lost nearly all gelatinizing properties before an appreciable amount of glycocoll has been formed. The change which takes place is not yet thoroughly understood, and well merits further research; it is, perhaps, similar to that which takes place in pectin, the gelatinizing principle contained in fruits, which by boiling becomes converted into parapectin, and by boiling with acids into metapectin. The only difference is, that in the case of gelatine, acids seem only to accelerate without changing the nature of the alteration produced by simple ebullition; whereas from pectin two substances, having different chemical properties, are produced.

I propose, then, for want of a better name, to call the gelatine in its altered condition metagelatin, on account of the similarity of the change to that produced by the treatment above mentioned of pectin. It has all the properties requisite to form a perfect varnish for the preservation of the collodion plate in the dry state, and in this respect seems far to excel albumen, gelatine, honey, or any other agent which has yet been proposed. It possesses sufficient fluidity, is unacted on by nitrate of silver in the dark, is soluble in water, dries without cracking into a transparent film, does not retard the sensibility, and when softened with a little honey, supports the action of the developer without the least tendency to blistering. The change, however, by simple boiling, which is at best imperfect, may be rendered far more sure and rapid by the presence of a strong mineral acid, as the sulphuric, for instance. The following is an outline of the method I employ:

Take 1½ oz. of pure white gelatine and dissolve it in 10 ozs. by measure of boiling water, in a porcelain capsule. When thoroughly dissolved, add to it 60 minims of strong sulphuric acid, which has been previously diluted with 2½ ozs. by measure of distilled water; boil for five minutes, then remove the capsule from the fire, and allow the liquid to cool completely. Then heat it up again to boiling for five minutes, and again let it cool; this time it will most probably not gelatinize, but should it do so, another warming up and subsequent cooling will be sure to bring it to the necessary condition. When the liquid no longer sets on cooling, the acid must be neutralized by the addition of powdered chalk or whiting, till effervescence no longer takes place, and the sulphate of lime thus formed is to be removed from the liquid by squeezing it through a piece of fine linen. In order to prevent all danger of blistering during development, which might ensue from using this solution of metagelatin alone, I find it more convenient, according to the method of M. Taupenot, to combine it with an organic deliquescent substance, such as, for instance, honey or glucose, or indeed any of the other substances which have been proposed for preserving plates in the moist state since the introduction of honey. Honey, however, seems to answer so perfectly, that I am inclined to adopt and recommend it in preference to any other.

The following are the proportions in which I combine the syrup:

Solution of metagelatin..........	5 ozs. by measure.
Fine honey......................	2 drs. by weight.
Distilled water.................	5 ozs. by measure.

When the plate is withdrawn from the nitrate bath, it is to be held for a moment with the corner resting on a piece of blotting-paper; it is then to be held horizontally, and a portion of the syrup to be poured on at one of the upper angles, and flooded carefully from there to the opposite angle, in a similar manner to that by which the plate has been previously coated with the collodion. This portion of syrup is to be thrown away as it runs off the plate, and it will have carried off and driven before it a considerable portion of the nitrate of silver, still leaving behind a sufficient excess to retain the sensibility. Another portion of syrup is now to be poured on, and this poured off and on several successive times till it takes evenly over the whole surface. The plate is now to be stored away in the dark box to dry, and it will perfectly retain all its sensibility for many days, or even, in cool weather, for weeks.

To develope, all that is necessary is to dip the plate into cold distilled water, or cover it for a minute with water, so as to wet the surface completely and evenly. The picture is now to be developed as usual, with the ordinary pyrogallic-acid solution, and fixed with a solution of cyanide of potassium. If the negtive, when finished, is not found to possess the requisite vigor, a circumstance which is liable to occur in cold weather, it may be strengthened by pouring over it a solution of gallic acid, to which has been added a little of the nitrate bath.

In publishing this process, I desire it to be understood that I by no means wish to claim being the first to apply gelatine for the preservation of the collodion plate in the dry state, but rather the application of the gelatine in its changed state.

Since writing this process for publication, I have just produced a perfect and spotless negative on a plate which had been kept six weeks.

I can hardly yet fix a time for the exposure of these dry plates, but from my present experience I should be inclined to say about one-half longer than with the ordinary moist process. The unusually cold weather we have at present may, however, have some effect in retarding the action.

With regard to the correspondence between J. S. and myself on the subject of the honey process, I think the readers of our Journal would hardly thank me were I to burthen its columns with letters as long-winded and irrational as J. S——'s last. I feel it sufficient to say, in reply, that any reader of it will find that he inadvertently, at its very commencement, admits the very point for which I contend, viz.: that I was the first to apply honey to the collodion plate, obtaining thereby a retention of sensibility for "a few hours," an effect never before attained, except by the nitrate of magnesia process of Messrs. Crookes & Spiller. And if by the same means I was enabled to retain an exalted sensibility, is this any proof against my point? True that Mr. Shadbolt has, by removing a portion of the nitrate of silver, prolonged the period over which the plate may be preserved without spoiling; but as in reality the preservation for a few hours is of at least as much importance as preservation for days, and considering the defects arising from dust and other causes in long-preserved plates, it seems to me preferable to abandon the idea of a moist process where long preservation is concerned, and to seek for a good dry one, such as the one I have above detailed, using my own old honey process for work nearer home, and where an exalted sensibility is especially aimed at. I am, sir,

Your obedient servant,

F. Maxwell Lyte.

From the Liverpool Photographic Journal.

RAPID WAX PAPER, PROCESS.

BY M. DE LA BLANCHERE.

After the sheet of paper has been properly waxed it is ready for iodizing. The following special conditions are to be observed in the preparation of this bath:—It should contain a size strong enough to fill up the pores of the paper and make it more approaching the condition of a smooth, inert surface. If too thick the size produces oblong drops or irregular lines on the sheet when hung up to dry, which are liable to form black stains in the gallic acid developing solution. The iodide should not be in too large quantity, otherwise, after having penetrated the pores of the paper, there is formed in the exciting medium too dense a film of iodide of silver, which produces thick and opaque pictures.

The sizing is produced in the following manner:—take

Water	1 quart.
Best rice	5 ounces.
Linseed	$1\frac{1}{2}$ "
Isinglass or fine gelatine	$\frac{3}{4}$ "

The latter should be dissolved by aid of heat, and more especially if isinglass be preferred, as this takes a much longer time. The rice and linseed should be allowed to digest a little; the former should have no grains burst.

For the iodizing bath; take

Size (prepared as above and filtered while warm through linen)	$1\frac{3}{4}$ pints.
Milk sugar	$1\frac{1}{4}$ ounces.
Iodide of potassium	9 drachms.
Bromide of potassium	80 grains.

The sheets are to be immersed one after the other for ten minutes at most, carefully avoiding air bubbles, and then hung up to dry.

The paper thus prepared will remain good for two or three months, and after that time it can be restored to its first freshness by re-immersing in the iodizing bath.

The remaining operations of exciting, &c., are performed in the ordinary manner.

From the Jour. of the Phot. Soc.

LECTURES ON PHOTOGRAPHY,

Delivered in the Royal Institution of Great Britain.*

BY THOMAS A. MALONE, F.S.C.,

Director of the Laboratory in the London Institution.

§ 3.

Wollaston, in 1803, made some remarkable experiments as to the action of light upon a resinous substance known in commerce as *gum guaiacum.* The import of these experiments we shall examine at a later period, merely noting, for the present, the fact that Wollaston first introduced us to a class of bodies which, in the hands of Niépce and later experimentalists, has been constantly rising in importance, and so continues down even to the present time.

Nicéphore Niépce stands out in clear relief, and claims our reverence as the founder of the art of engraving by the aid of light. His results, though rude compared with those of our day, are not more rude than were those of his photographic precursors, Wedgwood and Davy; nay, they will even bear a comparison with the earliest labors of Talbot and Daguerre. This is great praise, and it is deserved; for not only did Niépce produce photographic images, but he produced engraved plates by means of those images, so that his works could be multiplied by the ordinary engraver's printing press. The problem of the *fixation* of the images of the camera was now in one sense solved. Let us, for the present, examine a sketch only of his method.

There is a peculiar pitch-like or bituminous substance found upon the shores of the Dead Sea, and which from time immemorial has been called *Bitumen Judaicum*, or Jews' pitch. This, and other varieties of the same body, found in different parts of the world, have also received the name of Asphaltum. There is some difficulty in giving a precise account of these substances, from their not having undergone a thorough investigation.

This bitumen formed Niépce's sensitive photographic "etching ground." It is soluble to a certain extent in some essential oils and tarry fluids, or mineral naphthas; but experiment alone can decide on the most sensitive variety. When dissolved, it forms a brownish-black varnish, which can easily be applied to such surfaces as those of glass and metal plates. On exposure to a dry atmosphere, especially if a gentle heat be brought into aid, the solvent evaporates, leaving a very thin film of bitumen, which, after the manner of varnish, covers the whole plate. We have now only to expose a plate so varnished to the action of the light, just as Wedgwood and Davy exposed their chemically-coated paper, and we obtain an alteration of the bitumen over all those parts where the light has acted, and apparently an alteration proportional to the intensity of the light, which may either fall directly or be applied in a more feeble state through the camera obscura.

The plate, after exposure to the light, is submitted to the action of a mixture of oil of lavender and rectified oil of petroleum, or *mineral* naphtha. This fluid is placed in a dish, and the plate is plunged into it, so that the whole surface can be instantly covered by this *solvent*, which now acts upon all those parts which have not been hardened by the action of the light. The image, which at first is so veiled or latent that it might escape the notice of any but a very observant eye, gradually unfolds itself, and presents a phenomenon very characteristic and interesting. It is something very beautiful, indeed, and quite *sui generis.* The lights of the picture are represented by the hardened black, pitchy veil, which has entirely disappeared from the darkest shadows, leaving the bare silver plate fully exposed, while, in what may be called the "half-tints," the varnish is partially removed, giving a peculiar charm to the shadowy films of semi-transparent reddish brown and altered bitumen. This is an exceedingly curious process, and it demands a closer investigation, notwithstanding the difficulty that exists of obtaining always a bitumen uniform in its properties.

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* Continued from page 20, vol. x., No. I.

The solvent, having acted according to the pleasure of the operator, is poured off, and the plate is now washed with water and dried. This is the first fixed photograph! the reader may truly exclaim. And, what is more, he may see that we have only to pour engraving acid upon the surface of the plate to obtain an *etching* of all those portions of the metal which the solvent has laid bare, and even of those parts where the varnish is thin enough to allow the acid at length to penetrate into the half tints of the image.

Finally, we have only to remove the bituminous etching ground which remains—the printer's ink and press will do the rest. Furthermore, we have only to anticipate a step first taken by M. Fizeau, who employed the electrotype to multiply the etched plates, and we have laid the foundations of the important art of photo-galvanography. Let us not forget the name of Nicéphore Niépce!

I regret that I am here compelled, for the present, to break off our narrative. I shall henceforth endeavor to make each section contain a distinct and practical process, so that the reader may not be confused as to the great divisions of the art. I shall also endeavor so to arrange the descriptions that no great violation of historical order shall occur. My aim is that the reader shall have a clear, concise, and yet complete view of all the branches of the art, so exhibited as to let us see by what means and by whose hands photography has become what it is in our day.

From the Liverpool Photographic Journal.

THE RECENT ECLIPSE OF THE MOON.

LUNAR PHOTOGRAPHY.

BY M. M. BERTSCH AND ARNAULD.

The following is the account given by M. M. Bertsch and Arnauld of their recent experiments in Lunar Photography:—

The object glass of 20 inches in diameter and 49 feet focus, by which the lunar image was formed, was mounted equatorially in a garden, and moved on a cast iron platform, supported by masonry of the most solid kind. The glass, which had not, however, received the last touch from M. Porro, was nevertheless perfectly achromatic, of a very fair polish, and gave a tolerably sharp image. The sensitive plate was kept at the focus in a holder which moves on four rollers, running along two grooves in the plane of motion of the image. This arrangement was drawn along, so as to exactly follow this movement, by a clock, the rate of which should, of course, be perfectly uniform and isochronous for at least 10 seconds.

M. Porro, was doubtful whether, with such a focal length as 49 feet, so feeble a light as that of the moon, diffused over an area of nearly six inches diameter, could impress our sensitive surface strong enough to give a negative in a sufficiently short time. Consequently he was unwilling either to go to the expense of clock-work movement which should answer all the desired purposes, or arrange the plate-holder as it ought to have been, not on a framework of wood, but on metallic grooves fixed to the stage, and by which means the jerking movement would have been avoided.

The motive power used in this preliminary experiment was one of an old construction, governed by the usual fan regulator, and the fusee of which was not in proper proportion to the length of the spring. As the plate could only be moved along by irregular jolts, we were unable, even in ten seconds, to obtain anything but a series of superimposed images, a little way out of the line of the moon's motion, and consequently indistinct. On one of our pictures can be seen as many as six images, one over the other at extremely minute distances apart.

In spite of these serious drawbacks to the sharpness of the image, the experiments has, we affirm, completely succeeded. In a photographic point of view, although the motion of the plate across the field only allowed the central rays to act during a very short time, our trials have given us perfect negatives. During the continuance of the eclipse we took three pictures, one in 10, another in 15, and the third in 25 seconds. All three were successful, and are good negatives, although developed with pyrogallic acid alone, without employing any of the accelerating agents which science places at our disposal. The mechanical imperfections which we were unable to overcome, must be remembered; neitner the object-glass nor plate holder moving smoothly, but by jolts, and thus causing dust to be raised, some of which has fallen on the sensitive surface and given rise to stains. Allowance will also be made for a temporary location in a garden in the middle of the night, and at a season when the damp made us unable to clean the glasses perfectly.

If these several causes have made us unable to present to you perfect impressions, and such as we may certainly hope to obtain under better circumstances, this experiment at least proves that, with moist collodion, by approaching in its combinations the limit which separates spontaneous reduction from that brought about by light alone, such an extraordinary sensitiveness can be obtained in so feeble a light as that of the moon as to give a negative sufficiently intense for printing any number of good positives.

Our first picture, taken at 10h. 1′ 20″, and only being exposed 20 seconds, is consequently the least indistinct; the next, taken at 11h. 0′ 30″, was exposed 15 seconds, but the grooves not being parallel to the motion of the moon, the image is drawn out, as it were, which makes it altogether confused. The third was taken at 0h. 41′ 5″, that is to say at the time when the moon has left the earth's shadow, and shows this interesting fact that the portion of the moon which was still enveloped in the penumbra, reflected no chemical rays, although we could only detect a diminution of about one-tenth in intensity.

We have, in conclusion, to thank M. Porro for the kindness with which he has assisted us, and the readiness with which he has modified his apparatus to suit the requirements of photography. It will be learned with pleasure, that, assured by this preliminary experiment of the power of the means employed, he intends to construct machinery capable of producing a uniform movement, and to place his beautiful object-glass in such favorable circumstances as shall ensure complete success.

From the Jour. of the Phot. Soc.

CALOTYPE PROCESS.

To the Editor of the Photographic Journal:

Swindon Rectory, Cheltenham, Dec. 30, 1856.

MY DEAR SIR,—I, in common with most calotypists, was for a long time troubled with spots in the negatives, arising from what I supposed were metallic particles in the paper, until Mr. Ruck, photographic artist, Cheltenham, suggested the use of free iodine and cyanide of potassium. I tried these, and have never since been annoyed by those negative-destroying marks. I use Turners paper, without taking the slightest notice whether it is spotted or not.

My manner of proceeding is the following:—I prepare the iodizing solution according to Dr. Diamond's formula; to the

4 ozs. of solution I add a piece of cyanide of potassium about the size of a pea, and free iodine until the solution is of a cherry color. Upon this I float the paper, until I can distinctly see through the back the color of the solution; I then hang it up by one corner to dry; when about three parts so, I wash in two or three waters, and allow it to soak for about five hours. The paper will then be of a pale brimstone color, and nearly as dark on the back as the face; I find that the easiest method of drying this paper (which from soaking is extremely rotten) is to place all the sheets in a flat dish containing a small quantity of water, and to take out sheet by sheet, and to lay them on a clean counterpane round the side of a bed, so that the water may drip off. If this be done carefully, there is no danger of tearing even the edge of the paper.

By using this formula the negatives are considerably more intense, and the half tones more perfect than when the paper is prepared without the cyanide and iodine.

To sensitize:—take 3 drachms distilled water, and add 16 drops of 30 gr. aceto-nitrate solution (30 drops acetic acid to the ounce, and 14 drops of saturate solution of gallic acid)—spread with a glass rod, and *carefully* blot off with *fresh white* paper; develope with equal parts of nitrate solution and gallic acid, and fix in the usual way with hypo. I have used this paper in cold weather seven days after being sensitized with perfect success, and very often after two days in the very hottest weather in this country. The picture is always better if developed five or six hours after exposure than if it be developed at once. All who have tried this method have met with the same success which has invariably attended my photographic excursions. The time of exposure with a Ross's 3½-inch landscape-lens, 16-inch. focus, varies from five to twenty minutes, according to the season of the year, the object, &c.

I have the honor to be, dear Sir, faithfully yours,

Lewis R. Griffiths, M.A., Oxon.

From the Jour. of the Phot. Soc.

ON FUSED NITRATE OF SILVER.

BY MR. HARDWICH.

The crystallized nitrate of silver may be easily fused in a porcelain capsule placed upon a sand bath and heated by a lamp. During the operation it must be stirred with a glass rod, in order to prevent the portion in contact with the sides being over-heated. There is less danger of producing *nitrate* than might be apprehended, since the temperature at which the salt evolves oxygen is considerably above its melting point. If, however, the sample of nitrate operated on be impure, or organic matter be present, blackening will take place, and nitrate of silver be formed.

Whilst in the melted state, nitrate of silver has a greenish-yellow color, but it becomes nearly white on cooling. The aqueous solution restores the blue color of reddened litmus paper; and this is probably the proper re-action of the pure salt, since it appears to be invariably present, however carefully the process of fusing be performed.

The lunar caustic of commerce often answers the purposes of photography, but as it is prepared roughly for surgical purposes, it cannot be depended on.

A photographic bath made from properly fused nitrate of silver, will require no addition of carbonate of soda, or of acetate of silver: simple solution in water, with iodide of silver to saturation, will be sufficient. Fogging need not be apprehended; but as the equilibrium of a chemically neutral bath is somewhat easily disturbed, a little acid may be dropped in with advantage. For negatives use acetic acid, $\frac{1}{6}$ of a minim of the glacial acid to each ounce; and for positives nitric acid, $\frac{1}{20}$ of a minim to the ounce.

The exposure in the camera will be much less than in the case of the ordinary crystallized nitrate of silver, and the image will develope more rapidly, and possess a superior intensity; especially so in the skies of landscapes and the white borders of engravings.

If adulteration of fused nitrate of silver be suspected, it may be tested for, by adding to the solution about one-half its weight of common salt, dissolved in water, and collecting the precipitated chloride of silver upon a filter. Twenty grains of pure nitrate of silver so treated should yield a deposit, which, when washed and dried, weighs rather more than sixteen grains and three-quarters.

From the Liverpool Photographic Journal.

METHOD OF FIXING POSITIVES.

BY M. VERNIER, JR.

The paper being prepared with chloride of silver in the usual way, and placed in the pressure-frame, the exposure is prolonged until the shadows of the picture are very deeply printed so as to have all the detail in the light parts. Five to ten positives are printed one after the other, and then they are all completely immersed in a large quantity of weak solution of salt. In a few hours the water is changed, and in the evening they may be fixed. For this purpose a solution of chloride of gold, in sufficient quantity to cover a picture, is poured into a flat dish, and one of the prints laid in it; the dish is now gently tilted backwards and forwards until the picture is sufficiently toned down, and then the latter must be well washed in abundance of clean water. The other pictures are now to be treated in the same manner, and then the whole are to be allowed to soak all night in a large basin of clean water. They are afterwards to be fixed by soaking for at least half an hour in a solution of hyposulphite of soda, (one to fifteen), and then for the same time in a solution of an alkali, (one to ten), afterwards washing as usual.

PREPARATION OF NITRO-GLUCOSE.*

When 3 oz. of cold nitrosulphuric acid (consisting of 2 parts oil of vitriol and 1 part of chemically pure monohydrated nitric acid) are mixed with 1 oz. of finely-powdered cane-sugar, there is formed at first a thin transparent pasty mass. If it is stirred with a glass rod for a few minutes without interruption, the paste coagulates as it were, and separates from the liquid as a thick tenacious mass, aggregating into lumps, which can easily be removed from the acid mixture. Not a trace of gas is given off during this reaction, nor any vapors of hypo-nitric acid, but there is a slight development of heat. I may observe that the sugar does not experience this change when the acid mixture contains even a seventh of its weight of water.

If the lumps are immediately removed after their formation by means of a glass rod into cold water, they become hard; but in this state they may easily be drawn out like softened wax or resin. This substance smells strongly of hyponitric acid, has a very acid and intensely bitter taste, and weighs previously to being treated with water $\frac{3}{4}$ oz. Kneaded in warm water until the latter no longer reddens blue litmus-paper, it exhibits the following properties:—It is void of color and smell, has a faint bitter taste something like mastic, is hard and brittle in the cold, may be rolled into forms like jalap-resin at the ordinary temperature, acquiring a silver color and a beautiful silky lustre; it becomes soft and adhesive between the fingers, and may be drawn out into thin threads. It is perfectly insoluble in cold water, in which it sinks to the bottom, but melts in boiling water and is gradually dissolved, communicating to it a bitter taste.

When the substance is cautiously heated in an open vessel to melting, it disengages aqueous vapor only; and if allowed to cool when no more water is given off, the residue appears transparent, nearly colorless, and strikingly resembles resin. If the application of heat is continued, it puffs up, giving off reddish-brown vapor of hyponitric acid; if the mass is heated still stronger, it suddenly goes off like gun-powder, leaving but a slight trace of ash.

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* Chemical Gazette, 1847, vol. 5. p. 254. Translation of a paper by C. F. Schönbein.

From the Jour. of the Phot. Soc.

MR. HARDWICH ON IMPURITIES IN COMMERCIAL NITRATE OF SILVER.

[Read January 8, 1857].

In conducting a series of experiments during the past summer with the view of improving the manufacture of collodion, some peculiar conditions of commercial nitrate of silver fell under my notice, of which a careful record was made, with the intention of communicating it to the Society. The subject is one of interest, inasmuch as these faulty conditions of the exciting solutions interfere with the production of good negatives, even when a collodion of superior quality is employed.

In the last edition of 'The Collodion Process,' by T. H. Hennah, an anomalous state of the nitrate-bath is spoken of, in which the action of light upon the sensitive film is *reversed* by over-exposing the plate in the camera; and the addition of ammonia, and subsequently of acetic acid, is advised as a remedy. Other observers have noticed the same fact; but no detailed account of the phenomena appears to have been given.

In purchasing the crystallized commercial nitrate of silver, I have found a peculiarity of the above kind to be frequently present. Usually it exists only to a small extent, and the first noticeable effect is, that the negatives are particularly feeble, although free nitric acid has been removed from the bath by carbonate of soda. The high lights especially lack opacity, being little or not at all more developed than the half tones,—even when the exposure was correctly timed. The image comes out unusually slow on applying the pyrogallic acid, and cannot readily be intensified by prolonging the action. On clearing away the yellow iodide and examining the plate, it is found dull and metallic by reflected light, without any bloom or creaminess, and of a leaden tone by transmitted light, as if developed with protosulphate of iron.

A sample of nitrate of silver, which exhibits the same condition, but in a more marked degree, if it be simply dissolved in water and saturated with iodide, but not neutralized, gives a bath which will sometimes change the character of the collodion image completely, making it *positive* instead of negative by transmitted light; the parts corresponding to the sky and other strongly illuminated objects being free, or nearly so, from deposited silver.

All these effects are more manifest when the plate is kept a long time in the bath; and it is occasionally possible to obtain a tolerable result by removing it as soon as the formation of the sensitive iodide of silver is completed. On the other hand, with a pure nitrate-bath, the intensity of the negative is not decreased by leaving the plate in the solution; and hence it is evident, that the faulty nitrate of silver contains something which produces a chemical action on the film.

With certain samples of collodion the effect is less seen than with the others; most so with new and pure collodion, and least with that which has become old and intense. Hence an operator having such a bath as now described, would approve of an intense collodion, and pronounce it alone capable of giving a negative picture.

The addition to the bath of an alkali followed by acetic acid is, to some extent, a remedy; but a more effectual plan appears to be to *melt* the nitrate of silver before dissolving it. In this way a sample which appeared worthless was at once restored to perfect efficiency.

Chemical tests failed to detect any metallic impurity in the faulty nitrate of silver. The crystals were unusually large and well formed,—the solution nearly neutral to test-paper. No lead or copper was present. What, then, was the cause of the peculiarity? The fact of simple fusion removing it seems to indicate some volatile substance; but yet not an acid, inasmuch as it partially resisted treatment with carbonate of soda. The most reasonable supposition perhaps is, that one of the lower oxides of nitrogen may be retained by the nitrate of silver, crystallized from the acid used in dissolving the metal; and this idea is the more probable from the fact that the development of the image is affected much in the same way as it would be by free nitric acid, the deposition of the silver being retarded, and the image being rendered grey and metallic.

But whatever be the nature of the substance, its expulsion by *fusing* is the point of practical importance. The use of fused nitrate of silver in collodion photography is not indeed altogether free from objection, on account of the ease with which it may be adulterated in that form, and the chance of its decomposition into *nitrate* if the heat be not applied carefully. When expense is no object, it would be better therefore to recrystallize after fusion. In other cases the whitest sticks, which dissolve in water without leaving any residue, should be selected.

The process of fusing nitrate of silver affords a means of detecting a second impurity in the crystallized article, viz. organic matter. Pure melted nitrate of silver made into a bath gives a perfectly clear and transparent negative, even with a collodion, colorless and free from iodine; but, in the condition now spoken of, the nitrate cannot be used after fusion without a certain addition of acetic acid, the neutral bath producing foggy and indistinct pictures.

A peculiar smell has been noticed on opening the bottles containing nitrate in this state, similar to that produced on pouring alcohol into strong nitric acid. The nitrate-bath prepared from such crystals, and without neutralizing the trace of free acid, gives an unusually intense image with a deficiency of half tone and great opacity in the blackest parts; being in this respect exactly the converse of the bath last described, in which the negative was feeble in the parts corresponding to the high lights. Comparing the two baths together, we observe also that the one which gives the least intensity is free from nitric acid, whereas in the other case nitric acid may be present, the fact being, that although nitric acid tends to diminish the intensity of a negative, yet the effect is not seen so much when organic matters are present of a kind which add to the intensity.

In hazarding a conjecture as to the source of this second contamination of commercial nitrate of silver, it may be supposed to arise from the plan, sometimes followed, of evaporating down old nitrate baths with a view of recovering crystals; which experience proves to be less safe than was at first imagined. By constant use in photography organic matters accumulate in the bath, which having an affinity for nitrate of silver are not expelled by evaporation: consequently on fusing the residue of an old bath, the salt blackens and carbonic acid is evolved, as has been shown in papers already published in the Society's Journal. The only safe mode of dealing with such solutions is, to reduce the silver to the metallic state, and to fuse it into a button in order to burn off all volatile and carbonaceous matter.

Organic contamination of nitrate of silver is a source of failure in the collodion process which has not received sufficient attention. On experimenting with various substances in order to ascertain the effects produced by adding them to the bath, most interesting results were obtained. In the case of one organic body, the collodion plates invariably became covered with transparent markings, although nothing of the kind was noticed when using a portion of the same bath purposely kept free from the organic addition. In a second instance there was a peculiar iridescence of the film. In a third, an intense red transparency of the developed image, with a dark solarization of the high lights, when looked down upon. In a fourth, great intensity of the blacks, with a loss of sensitiveness, and no gradation of tone. In a fifth, universal fogging.

These and other experiments were all performed with a collodion known to be in working order, and the principal object was to ascertain how far the composition of the negative nitrate bath might be effected by constant use. The result was not altogether satisfactory, inasmuch as it appeared that although the old baths gave as a rule the most intensity, yet the sensitiveness was sometimes less, and the chance of spots and markings greater than when newly mixed solutions were employed.

Economy requires that the nitrate bath should be made available as long as possible, and it is known that it may sometimes be used day after day for weeks together, only filling up the trough with a fresh and strong solution as the level of the liquid sinks. But it is quite necessary to be aware that changes do sometimes take place in solutions of nitrate of silver which have been used for collodion, and that a bath put away in good order may not, after lying idle for a long time, be found capable of producing the best quality of picture. The use of kaolin has been suggested to filter out the organic matter, and it will sometimes succeed more or less in doing so; but to ensure certainty, two baths should always be kept, that by a comparison of the one with the other any fault may be detected.

Besides the failures now mentioned as attributable to the use of impure nitrate of silver, there are others affecting the operations of photographic printing, but of which the limits of this paper forbid our present consideration. It is, however, most desirable to give publicity to such facts, that the preparation of pure nitrate of silver may receive that attention which its importance as a photographic chemical demands.

From the Journal of the Pho. Soc.

WHITE PRECIPITATE IN THE NITRATE BATH.

To the Editor of the Photographic Journal:

Wadhurst, Jan. 16, 1857.

Sir: On looking over your "Answers to Correspondents," in your last number, I find your reply to J. W. G. G.'s query is, that "a white precipitate ought not to form in the nitrate bath used for sensitizing albumenized paper, and we can only suggest that something has been added to the albumen by the paper of another maker." Now, whilst using paper of different makers, I have almost invariably found the precipitate mentioned after the bath has been some time in use, and when the proper quantity of silver is consequently reduced; but by the addition of a few grains of nitrate of silver, the precipitate is redissolved, and the bath restored. Your correspondent has, probably, used a solution of insufficient strength. I succeed best with Marion's paper when using a 60-grain solution.

I remain, sir,
Yours respectfully,
Henry Harland.

From the Jour. of the Pho. Soc.

INVENTOR OF THE PAPER PROCESS.

To the Editor of the Photographic Journal.

6 Argyll Street, Feb. 9, 1857.

Sir: Will you allow me to observe that I was rather surprised at reading in the "Photographic Notes" of the 15th of December last, edited by Mr. Sutton, the following observations, viz.: that "M Blanquart Evrard was the *first to publish* a really simple negative paper process," and that he (Mr. Sutton) considers him "to be the father of Photography on paper;" and at the same time adverts to a "Treatise by Blanquart Evrard, published in 1851."

Now, I think that it is generally known and acknowledged that Mr. Fox Talbot is really "the father of photography on paper," and that he took out a patent for the protection of his claim in the year 1839; perhaps, however, it may be admitted that in the specification the description was not sufficiently explicit for the *then* state of photographic knowledge; but in the year 1844, Mr. Cundall published a work in explanation of Mr. Fox Talbot's process, which had the effect of stimulating several persons to take up the subject; and but for such able and timely aid, photography might have languished for a considerable time longer. I may here remark that, in conjunction with Sir Thomas Maryon Wilson and Mr. Fry, I was induced to make efforts in the same direction, and in the year 1848 I formed for myself a mode of proceeding, which I published in the first number of the Journal in 1853, and to which I have adhered entirely from that time to the present. I state this more particularly, because I have recently, and from time to time, been applied to by strangers, &c., to know whether I *still* pursued the same plan or process.

The only alteration I have made has been in *hot* weather, when I have substituted plain distilled water for No. 2 (gallic acid), because I found that the gallic acid prevented the paper from keeping even for a *very short period*, and more especially so when I was staying with a friend in Lancashire during the *hot* weather at the latter end of August and beginning of September last; I could then get nothing unless the paper was exposed *immediately* after exciting, and that in the *very early part of the morning*.

The conclusion, therefore, to which I have arrived is, to omit No. 2 (gallic acid) in hot weather, and to adulterate No. 1 with *one* or *two* parts of distilled water during *hot* weather—and especially when the paper is prepared to be kept *during a whole day*. I may add, that I have found my process both *simple* and *certain* for all ordinary occasions.

Yours, truly,
W. J. Newton.

From the Journal of the Phot. Soc.

COLORING OF COLLODION POSITIVES.

To the Editor of the Photographic Journal.

Sir: As many of your correspondents have lately inquired for an easy process of *coloring* collodion positives, I send you the following, which will be found worth a trial, and with a little care and trouble will produce a first-rate effect:

1st. Take 10 grains of isinglass, dissolve in an ounce of warm water, and filter it; pour this, still warm, on the portrait; after well washing from the cyanide, let it dry by the fire, then breathe on it a little; it will be then fit to color, and the usual powder colors will adhere nicely; the picture may afterwards be varnished.

2d. Into a wide-mouthed bottle put a little Canada balsam, pour on some spirits of turpentine, and let it stand a day or two, occasionally shaking them; add 10 or 15 drops of this to 1 oz. of spirits of turpentine in another bottle, well mix and filter through blotting-paper, pour this on like collodion; having previously varnished the picture, let it dry before a clear fire, which will take a few minutes. For a picture intended to be *highly* colored, nothing can be better than the above; it will require care, as the color *bites* deep; if too much so, add more turpentine.

Yours, truly,
C. H. G.

From the Liverpool Photographic Journal.

KEEPING COLLODION SENSITIVE.

To the Editor of the Liverpool Photographic Journal.

Sir: I do not hesitate to take the liberty to send you a new process for keeping collodion sensitive, as I know its great value to photographers; for, although the oxymel keeps the film *sensitive*, it is not perfect, at least I have not succeeded in obtaining one good picture by that process. My process is as follows, and I have no hesitation in assuring you that it is absolutely perfect, insomuch that at the end of a week, the longest time I have kept them, (though I do not doubt it would do after a much longer time,) the result is equal in every respect to fresh-made collodion:

To 1 oz. of distilled or filtered rain water, add 3 drachms of best loaf sugar, the water to be almost or quite boiling, so that the solution shall be perfect. Filter whilst pretty hot, as I find the filtration then much more rapid than when cold. After sensitizing, place the plate in distilled or rain water in a dish for four minutes; then wash it pretty well with the same kind of water, and let it stand to drain for a minute. Then put it into the saccharine solution (in a dish) for four or five minutes; drain, holding the glass upright and parallel to the dish, just tilting it corner-ways towards the end of draining, and then place it edgeways on clean blotting-paper, where it may rest for a quarter of an hour; then remove it to a dry part of the paper, which prevents moisture at the bottom edge. The glasses should be put by in a perfectly dark place for future use, which, as I said, may be at the end of a week. The exposure in the camera should be ten minutes on a sunny day, and for a quarter of an hour in dark weather. Previous to developing, place the plate in *quite hot* rain water for seven minutes; wash pretty copiously with cold water. Develope with pyrogallic acid, 2 grs. per ounce, adding at the very beginning, 5 drops of a 30-grain solution of silver, which will bring out the picture in about a minute, then add 5 or 6 drops more of silver, which will effect a perfect negative. I should say that the 5 drops of silver are to be put to about the third of an ounce of the pyrogallic, and when the picture is out, pour this off into a small clean phial, and add the other 5 or 6 drops of silver. Fix with hypo, &c.

I offer this as a process always to be relied on, and therefore invaluable: for I have tried it at least one hundred and fifty times without the least failure, even from the first.

It is my belief that when this becomes better known it will entirely supersede the paper process, which is very troublesome, beautiful though the pictures be.

I trust you will try this, and make it known, as I feel certain that if these directions be followed, failure is out of the question.

It may be well to add that the same dish of water, after sensitizing, will do for as many plates as may be generally required.

Your obedient servant,
Maidstone, Feb. 9th, 1857. T. L. Merritt.

Personal & Art Intelligence.

— Our present number is so full of excellent and interesting matter, that we can afford to say but little ourselves. Apart from the Ambrotype Patent suits and the introduction of the Hallotype, there has little of interest transpired since our last issue, on which this follows closely—this, together with other urgent business—has prevented us from devoting man yminutes to this department. In regard to the Hallotype, there are the same fears and speculations on the part of photographers that has characterized the whole "*fraternity,*" (?) since the first introduction of the Daguerreotype into this country. These *ignus fatui* of timid minds should be dispelled. When we were told fifteen years ago, that the Daguerreotype was *past* improvement, and that the Photographic Art had reached its ultimate sphere, and were laughed at for our "wild views and foolish predictions," we calmly looked *forward* to the time when men would look *back* and wonder at their own obtuseness. When the collodion process was introduced, and the production of life-size photographs followed, we thought the time had arrived—but we were mistaken. Although we found many who acknowledged that our predictions had not been so very foolish after all, the greater number still adhered to the idea that photography had reached perfection and could rise no higher. It would seem that in some particulars this is the case in plain pictures—but it is only a seeming. Even the plain pictures are destined to undergo great improvement, which will be eventually accomplished. To a majority the Hallotype is a mystery, a stumbling-block—they are as afraid to touch it as a child is the fire. They look at the pictures and admire; they heap question upon question in regard to them; but while their beauty and naturalness strike them with admiration, that dreadful word "humbug" half chokes them, and they dread a knowledge of the means of their production, lest the *supposed* illusion might vanish, and end in *gas.* But there is too much substance in these pictures to be thus so easily destroyed. To the inquiry, "will the patent hold good?" we reply, in our opinion it will. In the present number we print the specifications, which will give every one an opportunity to compare them with alleged other similar processes, and point out whatever resemblance they may detect. In a former number we remarked, that we "cared not how they were produced, they were a great improvement and most exquisite productions." The process is somewhat analagous to several other methods recommended for producing pleasing effects by transparency, but we consider it sufficiently different from all to secure the validity of the patent right, and that infringements would be legally punishable. One of the greatest safeguards to the patentee or his assignees, we consider to be the fact that any infringement can be easily detected, owing to the impossibility of producing the same effect in any other way, than that described in the patent. Many may say that the process resembles that of Monotto. In fact its features do so, but Monotto never produced the same exquisite effect—while the most important part of the method is quite different—we mean that part which gives the Hallotype its extreme delicacy and stereoscopic effect. Herein constitutes the great improvement, and herein lies the force of the patent. A principle cannot be patented, but the practical application of that principle can. Monotto laid down a principle the full force of which he evidently did not comprehend, and in attempting to carry it out he fell far short of its capabilities. Mr. Hall (whether he was aware of Monotto's attempt or not is of no consequence) saw the principle, grasped it, and effected its full development by applying it to photography. Herein consists his claim, and what can be more valid? Of course many will rise up to dispute it. All inventions and improvements meet with the same opposition; but if these gentlemen had virtually accomplished the same thing, the simple question arises—why did they not put it in practice? We have heard very little of Monotto's process since its first publication, and why? Simply because it did not fully carry out the principle laid down. Mr. Monotto's method—the only one which is said to resemble Mr. Hall's—will be found in our volume for 1854. Our views are strenuously opposed to photographic patents of all kinds, and we endeavored by our advice to prevent Mr. Hall from taking one out for this improvement, but he could not agree with us, and it is only left for us to assure ourselves that we are perfectly safe in meeting the demands on our pockets for a right to practice the process. We have stated the facts of the case, and on these facts we formed the opinion that the patent is perfectly valid and safe.

In this connection we will take occasion to say, that Mr. Hall has now a very fine collection of his pictures on exhibition at Mr. Frederick's gallery, and as his perseverance—we may say laborious perseverance—to present these beautiful *fac similies* of the human face divine to the public in all their perfection, is deserving of a rich recompense, we trust the generous public will accord it to him. Apart from these pictures, Mr. Frederick's establishment is worthy a visit, for it contains a large collection of well executed photographs, that will repay examination.

— J. C. Elrod.—Please accept our thanks for the photograph. We should like a couple of negatives of the drawing. It would make a fine illustration for the *Journal.* The negatives would print better if more intense.

— J. Carbut.—The bath is a very strong one; but as we remarked before, we know operators who use baths even stronger. We do not know what duties are charged on Photographic material going from the United States to Great Britain.

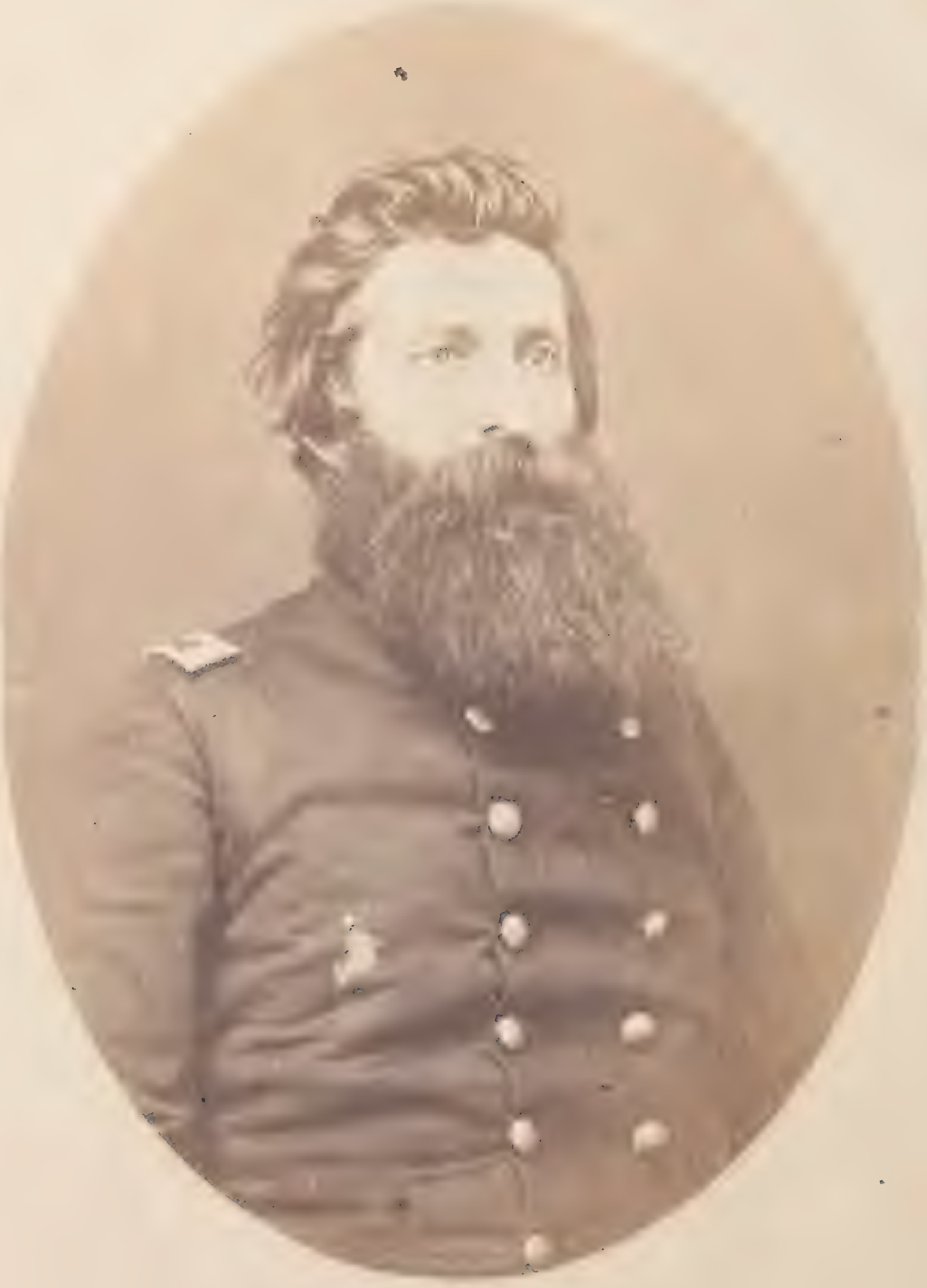
— Our editorial this month must be excessively brief—both for want of time and material. We have heard very little from our friends throughout the country during the last two weeks, but hope before our next issue they will give us the opportunity to deal largely in photographic gossip.

— Another attempt is being made to organize a Photographic Society, the plan of which we may give in April or May.

— In the next number we will give a review "On Heliographic Engraving and Damasquering," by A. M. Rossi, Esq., and "The Process of Transferring Paintings from Old Canvas to a New One," by the same.

— Mr. J. W. Jarboe will soon introduce to the Photographic public a new style of wood vise for holding plates of glass, and plate-blocks, which we have no hesitation in pronouncing the most complete of any yet invented.

— The English porcelain silver baths and solution dishes just introduced into the American market, are very superior. They are preferable to the *Patent* glass bath, in not being so clumsy, nor requiring so *expensive a quantity* of silver solution to fill them. They have long been tried in Europe, and pronounced upon most favorably.



MAJOR BRADLEY,
Of the Nicaraguean Army, under Gen. Walker.

Negative by S. A. Holmes, Esq., N. Y.

From the London Art Journal.

TALK OF PICTURES AND THE PAINTERS.*

BY AN OLD TRAVELLER.

CHAPTER III.

Sala del Gran Consiglio, Venice—Battle of Cadore—Sketch in the Uffizi—Landscapes of Titian—Just Praise of the Authorities—All Honor for the Work done—Regrets for the Work left undone—Portraits of Titian—Their Historical Value—Ippolito de' Medici—Pope Paul III—The Child of Roberto Strozzi—Portraits in the Uffizi—Laura de' Dianti—The Master's own Portrait—Question of the Visit to Spain—Works of Titian in that Country—Wilkie at the Escurial—Social Life of Titian—Suppers of the Garden—Contemporary Description—Plague in Venice—Death of the Master.

In the year 1547, that hall of the ducal palace, in Venice, called the Sala del Gran Consiglio, was destroyed by fire; many valuable works of Art then perished; and among them was the great Battle of Cadore, painted by Titian at command of the Venetian senate. The battle was fought between the imperialists on the one hand, and the Venetians, led by Alviano, the general of the republic, on the other. The composition of this work is rendered familiar by the engraving of Fontana; and Ridolfi, who declares himself to have seen a good copy, and may have known persons acquainted with the original,† has given a minute description of the whole. Of this the reader will find certain parts in Northcote's life of Titian, already quoted. The Italian author, alluding to the various parts of this lamented work, declares the landscape to have been faithfully depicted from Cadore—Titian's native place. He enlarges on the grand effect produced by the Castle of Cadore, which had been struck by lightning, and had taken fire. The building pours forth dark masses of smoke, "these, rolling in heavy clouds from the half-burnt structure, contributed greatly to the force of the general effect," says Ridolfi, "adding new terrors to those of the tempest roaring above, and of the conflict raging below." In the Florentine gallery of the Uffizi there is a sketch, made by Titian for the Battle of Cadore; in this, if the writer remember clearly, the general holds the baton of command; Ridolfi (*Maraviglie dell' Arte)* describes him as leaning on his sword.

In the pre-eminence of Titian as a painter of landscape the authorities have borne unanimous testimony. Speaking of the landscape, in a "Flight into Egypt," painted for "*Messer Andrea Loredano, che sta da S. Marcuola,*" Vasari has the following:—"Nel qual quandro è dipinta la nostra Donna che va in Egitto, in mezzo a un gran boscaglia e certi paesi molto ben fatti, per avere dato Tiziano molti mesi opere a fare simili cose, e tenuto perciò in casa alcuni Tedeschi, pittori di paesi e di verzure."‡

Du Fresnoy, alluding to the landscapes of Titian, remarks that, "No man ever painted landscapes in so great a manner, so well colored, and with such truth of nature."§ English commentators are equally lavish of their praise. "As a painter of landscape," says Haydon, "Titian was never surpassed." Northcote, speaking also of Titian, enumerates, among the many other qualities of the master, "his excellence in landscape-painting: whether introduced as an accessory or predominant," says the eulogist, "landscape is always treated by Titian in the grandest and most picturesque style."

Assenting cordially to all this, and most particularly to the "great manner and look of nature" claimed by Du Fresnoy as characteristic of this master, there is still a want, felt, if not by the painter, who may content himself with the indisputable excellence of what Titian did, yet always by the lover of nature—of nature in those external forms wherein the Greeks of old did well to suppose divinity, for are they not informed by a spirit which is indeed divine!

To Nature, in some of the holiest and most inspiring of her forms, Titian, if not insensible, was at least cold; he did but mark in them what sufficed for his purpose of the moment; but shall this be accepted? Can he whose soul bends reverently before the shrine, whose whole heart is cast all lovingly on the steps of the altar—can he content himself, for the object of his worship, with such homage as is paid by the mere crowd? He cannot, and does not.

Yet but little beyond this was offered by Titian. He does not approach the fanes with the simple reverence, the touching humility that win the very heart from one's bosom, as one lingers long sweet hours with the old masters; neither has he for one moment devoted to them that passionate love by which certain of our modern artists are lifting themselves above the mass.

Every other quality I grant him, and in abundance. How grandly do the many proofs he has left us of his truth and power rise in their well remembered beauty and stateliness to the charmed and lingering memory! Yet, admitting this—this and more, for much more might well be affirmed—I repeat that Titian did not give enough of his heart to the world without. A child of the mountains, he loved his native Cadore, and frequently returned to refresh his spirit amidst the deep glens and rich woods of his home, as certain of his works amply prove: yet did the life of the city too quickly resume its influence, and the pleasures of her interior existence, rather than the beauties of her outward aspect then ruled the ascendant. Nor let Pietro Aretino bear all the blame—Titian's companionship (I do not say friendship) with that bad man did not commence until he was fifty years old, and Aretino was much younger than himself: neither are these strictures to be called mere cavilling, they are at least made in no spirit of cavil; let the objector rather tell me, has he watched the sunset or the sunrise from that point whence Titian had the privilege of daily seeing both; has he felt the dews of mingled gladness for himself and gratitude to their Creator dim his eyes as the purple and the gold, the pearly tints and the delicate paly green, or rather all those indescribable hues—some faint semblance of which we seek to convey by these poor names, for lack of words more befitting—the hues of a rich Venetian sky; has he seen these when the sunset of Venice is making earth all holy with its beauty? Or, even more impressive, perhaps, have you, who are content with so much as the master has given, have you marked those broad, bright fields of space, that seem indeed to be opening the rejoicing plains of heaven itself to your reverent gaze, as you stand—not marvelling that the Persian knelt, nay, bending in heart and soul as he bent when that glorious sun declined—have you seen all these, as Titian must have seen them, from the spot where he stood daily? If you have not seen them, go then, give to your eyes that festival of beauty—beauty in its most entrancing, yet most sacred, most awe-inspiring loveliness; do this, and you will at least regret that, having all these glories for his Vision, the man so favored should have died and left the world no sign. Yet this has Titian done. So far as the writer's knowledge of his works extends, he has in no case given their full value to those heights, fair rising for then fortunate Venice, with all their ever-changing wealth of beauty. He has left all but untouched the rich stores spread before him, and stretching, aye, from his home|| in the radiant city, across the glittering

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* Continued from page 68, vol. x. no. iii.

† Ridolfi, as we learn from Lanzi and others, was born in 1596.

‡ See "Opere di Giorgio Vasari," Parte Terza, vol. v. p. 193.

§ Dryden's Translated Works, "Sentiments on the Works of the Best Painters, by C. A. Du Fresnoy."

|| In the Abate Codorin's work, "Dello Amore ai Veneziani di Tiziano Vecellio," the reader will find many circumstances of great interest as regards the domestic life of Titian, and his residence of some forty-eight years in the Via di San Canciano; but new buildings and other circumstances have now greatly altered the localities, and the character of the whole district is changed; the house itself remains, but the interior would not be recognized by its former dweller, were he now to revisit his earthly abode.

waters and across the fruitful plains, even to the Euganean Hills, and the far, far Alps of the eloquent Rhetia. Beauties which, but to see as the mere stranger and sojourner sees them, suffice to fill him with regret that the power of reproducing their pure loveliness for the eyes and hearts of all men, hath not been of his inheritance. All these, seen daily, hourly, with all of their enchanting variations of phase, never to be loved enough—at morn, at noon, in the purpling sunset, and beneath the one sweet star of early evening—with the fair moon looking in charmed delight over all, and again in the deep blue midnight, when the darkness is but in seeming, and the eyes of love are still potent as at noon-day to discern the divinity ever present:—all these were his yet his in vain. Never, so far as we know or can ascertain, was the master inspired to seize his powerful pencil, and to say, "Not fleeting, not evanescent shall be now thy glories, oh beauty! adored and made for adoration. Not for this bright moment only, but for all time shall be thy loveliness, heart-gladdening, for to this end hath man been touched by the fire of genius." Titian did not say this; he did not feel it.

"Nay, but perchance he knew that even the might of *his* power would strive in vain to reproduce that splendor of beauty, and so the hand fell by his side nerveless and trembling: no Hymn that he could raise was holy enough, and he kept silence in his despair."

Ah! so be it; and if you *can* hold thus of Titian, take that faith to be your consolation. Happily, the beauty for which his eyes were blind remains eternal. Still does it smile along the plain, still light the distant summits, for him whose joy at once and privilege it is to stand where once the famed Venetian stood, regardless. Happily, for when the hour shall bring the man, some faint, pale shadowings of that beauty may yet bid the outer world rejoice in the rich treasures of its spiritual loveliness.

And now you will say, "We have no need to seek far regions for the glory of the sunset, we fortunate English;" and you are right, we have *such* beauty—purple banks of clouds combining to form one of its many phases—as in some of its characteristics, will be found in no country beside. The writer retains remembrance—may heaven be praised for memory!—of some few instances, gathered in a loving life-time, of certain examples that no other land has approached; but for those vast infinitudes of space, those limitless regions laid open by an Italian sunset, to Italy you must go. *Here*, rich as we may be—as we are—in our varying beauty of clouds and sunshine, each enhancing the glory of the other, we have not the breadth of Venetian skies. Do you doubt this? *libre a vous*, and it is in charity, not in resentment, that I bid you go and see.

To the perfection of this master's portraits, writers of all lands do and have done such justice as repeated plaudits, echoing from all sides, may avail to secure; nor, as regards their fidelity, and the value they possess in their relation to the history of the period, could they be overrated. Kugler does but echo the general voice of authority when he affirms Titian to be "the finest portrait painter of all times." "He was not content," says the German writer, "with giving his subjects all that was grand and characteristic in style,—he also gave them the appearance of dignified ease. He seems to have taken them at the happiest moment, and thus has left us the true conception of the old Venetian, by the side of whom all modern gentlemen look poor and small."[*]

Poor and small indeed! and well would it be for modern portraiture if even this were the worst that could be said of the look imparted to its subjects—its victims rather—if, indeed, it be not the painter who is made the victim of his subjects' paltry vanity. Yet, if that be so, wherefore will he consent to the degradation? Is it for Art—the redeeming, the refining, the elevating—is it for her to put on fetters at command of the earth-born Vanity? But let us forget the matter,—there will come the remedy when Art shall have assumed its true place among us. The dawn of that day approaches; desiring eyes behold faint gleams in the distance; they become brighter; we have but to take patience, and the light shall come.

Of Titian's portraits, Du Fresnoy says, "They are extremely noble, the attitudes being very graceful, grave, and diversified, and all are adorned after a very becoming manner."[†]

True and forceful exposition of individual character is likewise among the precious qualities justly attributed to the portraiture of Titian. That of Ippolito de' Medici is thus contrasted by Hazlitt with one of a young Neapolitan—both in the Louvre when Hazlitt wrote—"All the lines in the face (of Ippolito), the eye-brows, the nose, the corners of the mouth, the contour of the face, present the same sharp angles, the same acute, edgy, contracted, violent expression; the other portrait, that of a young Neapolitan noble, has the finest expansion of feature and outline; it conveys the most exquisite idea possible of mild, thoughtful sentiment[‡] A quality of inestimable value in the painter who is the exponent of history, is truth of expression; nor is the advantage confined to the countenance only in the works of Titian—it extends to the whole work, and pervades every part of the person.

Of Paul III., painted a second time by Titian, with his grandson's, the Cardinal Farnese, and Octavio, Duke of Parma—Fuseli, examining the work, in company with Northcote, at the Capo di Monte, agreed with the latter, that it was, indeed, one of the finest examples in the world, "more particularly in regard to the expression, which is inimitably fine." Fuseli concluded his remarks by exclaiming, "This is true history."

Speaking of a portrait not known to the present writer—that of Pope Paul IV., namely—Mrs. Jameson remarks, and with truth, that "There are hands of various character; the hand to clasp, and the hand to grasp; the hand that has worked, or could work, and the hand that has never done anything but hold itself out to be kissed, like that of Joanna of Arragon, in Raphael's picture."

"Let any one look at the hands of Titian's portrait of old Paul IV., though exquisitely modeled, they have an expression which reminds us of claws; they belong to the face of that grasping old man, and could belong to no other."[§]

That so much eloquence of expression as we find attributed to the portrait in question may be found in a pair of hands, when those hands are painted by Titian, will surprise no one; the word grasping must, however, here denote, not avarice, but tenacity of character, or such hands as those above described could scarcely be attributed, with truth, to Pope Paul IV. Even in Pope Paul III. (Alessandro Farnese), whose portrait, painted by Titian, is known to all,[||] the grasping of avarice was no distinctive characteristic; although, for his son, the ill-fated Piero Luigi, and for his grandsons, that pontiff was insatiable of honors and dignities, and in pursuit of these may have been led to the desire for treasure, as a means to his end; but to Paul IV., the determined reformer, the zealous restorer of the then dying Inquisition, the founder of the festival in honor of St. Dominic, and of the rigid Order of Theatines, the debasing vice of avarice was absolutely unknown. Many wrongs had he to expiate, many errors to bewail; but a grasping love of gold was not among them. It is true that the reforms he sincerely desired to make were permitted to suffer interruption from the fierce war waged by that pontiff against the whole might of Spain, and the Empire; it is also true that he, whose whole previous life had been a protest against the nepotism of former popes, no less than against all other abuses in the Church, was by that war betrayed into according undue ascendancy to his own nephews, for whom the house of Colonna, and other great families, were despoiled of their possessions. But this took place in a period of difficulty and danger: when the return of peace gave him leisure for learning the truth, Paul IV. did not spare the guilty because they were those of his own household; above all, in no case did he appropriate any portion of the spoil. Again, if the statues, once erected to his glory, were torn from their pedestals and dragged through the streets by a furious populace, before the eyes of the pontiff had well closed in death, that was not because of oppression induced by avarice; but because the nobles, pursued by his uncompromising justice, resorted to their well-known custom of inciting the people to revolt, and also, perhaps, because these last had suffered cruelly from the consequences of the Spanish wars. It was, in fact, the Pope's first care, on the cessation of those wars, to reduce the taxes, and remit every impost bearing hardly on the people: to amass treasure was at no time one of his aims, and of the papal avarice none did or could complain. The ruling passion of Paul IV. was, without doubt, love for the Church—the Church, not in its abuses, as he found, and, unhappily, left it also; but in its primitive lustre and purity, to which he had fondly hoped it might be recovered by his means. Fain would Giovanni Pietro Caraffa have restored whatever, in doctrine or discipline, was, in his opinion, calculated to enhance the true dignity of the Church. To her services he would fain have imparted an elevation worthy of those days when all was best and fairest. For her ritual he had conceived hopes of an ideal perfection, the devotional splendors whereof none had previously beheld: neither was he permitted to witness them. Not only did he exhort the princes of the Church to perform the duties of their office faithfully, he gave them the example in his own person, and compelling his cardinals to preach publicly, the pontiff also ascended the pulpit, and taught them how the duty should be performed.

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[*] Schools of Painting in Italy, part ii. p. 447.

[†] "Sentiments," *ut supra*. Dryden's Translation.

[‡] See "Painting and the Fine Arts," p. 22.

[§] See "A Commonplace Book of Thoughts, Memories, and Fancies, Original and Selected," p. 289.

[||] Of this portrait there is a replica of undoubted authenticity in Lord Norwick's Collection at Thirlstaine House.

On this point we have the testimony of the Venetian ambassador, Mocenigo:—"Nelli officii divini poi, e nelle ceremonie, procedeva questo pontefice con tanta gravità e divozione che veramente pareva degnissimo vicario de Gesu Cristo. Nelle cose poi della religione si prendeva tanto pensiero, et usava tanta diligenzia, che maggior non si poteva desiderare."[*]

Hear, also, what another ambassador from the Venetian Republic to the papal court, Bernardo Navagero, namely, reports to the Signori, his masters, of this same pontiff:—

"Ha una incredibile gravità e grandezza in tutte le sue azioni, e veramente pare nato al signoreggiare."[†]

Of Titian's success in the delineation of children we have many proofs. Ticozzi relates the following anecdote: "In the year 1542, Roberto Strozzi was in Venice with a beautiful child, whom he tenderly loved, and now would he have Titian paint him her portrait at full length. Then it chanced, something more than a century later, that this portrait was placed in the open gallery of St. John's Church, on the day of the Baptist's festival, and was there seen by the young Count, Lorenzo Magalotti, then a boy of six years old, who has himself told us how his 'whole life was ever afterwards haunted by the recollection of that picture.'" In the sixtieth year of his age he writes to Leone Strozzi, a descendant of Roberto, entreating, and not for the first time, that a copy of his beautiful kinswoman may at length be granted for his solace; he cites many proofs of "the terrible ascendancy this little girl has had over him;" and if the reader be not very hard-hearted, he will rejoice to hear that the copy so long desired was ultimately sent him.

In the Florentine Gallery of the Uffizi is a work in which are the portraits of the Duke of Urbino, of Francesco della Rovere, and of the Duchess, his wife—this is considered to be a masterpiece in its kind. The duke is in armor, and in the perfection with which the metal is portrayed, as well as in the delicacy and transparency of the coloring throughout—the face of the duchess being more particularly remarkable for these qualities—foreign critics find an inexhaustible subject of eulogium. The portrait of Catharine Cornaro, Queen of Cypress, is likewise here; she is presented under the semblance of Catharine of Alexandria, and the work is one of great beauty.

The picture called "The Flora of Titian," likewise in the Uffizi, has been much dicussed, and is well known: this also is a portrait, and is considered to be a replica of that in the Louvre called "Titian's Mistress"—they are consequently both likenesses of Laura de' Dianti, second wife of Alfonzo, first Duke of Ferrara. The appellation, "Titian's Mistress," is now understood to be a gratuitous assumption, in this instance as in so many others; it is from Ticozzi, not always to be depended on, that we obtain the settlement of this question: he declares himself to be convinced by a careful comparison of medals and well authenticated portraits with those now in question, and in this instance is supported by collateral evidence of so much authority, that no reasonable doubt of his accuracy can, as we think, be entertained. In an early work mentioned by Vasari,[‡] and still, as is believed, at Ferrara, Titian had already depicted "The Signora Laura;" but when, after the death of his first wife, Lucrezia Borgia, the duke married this second duchess, the great painter was called on to delineate her features once more, together with those of her well-pleased lord, who had bestowed on her the name of "Eustochia," to intimate his entire satisfaction with that second choice.

That the master's own portrait, painted by himself, is in the Uffizi, our readers know: this, also mentioned by Vasari,[§] was sold to the Bellunese painter, Marco Ricci, at some time early in the last century, by a certain Osvaldo Zuliano, guardian to Alessandro Vecelli, a minor of the painter's family, from whom it was in fact purloined by Zuliano, under the pretext of having it valued in the interest of his ward. Taking the portrait to Venice, he next declared it to have been sent back to Cadore—where it had been carefully preserved by Titian's earlier descendants—having been found, as he said, of no value. But the messenger entrusted with the valuable deposit never arrived. The picture, transferred by Ricci to the Florentine Gallery, was discovered there by Alessandro Vecelli, by whom a process was instituted against his treacherous guardian to recover the value, but the result is not known.

Three times did Titian paint the portrait of Charles V., and on the last occasion the Emperor declared himself to have been thrice immortalized in consequence. The story of the fallen pencil, with the declaration of his imperial majesty, that to wait on Titian was a fitting occupation for the Cæsar, is well known, as are the princely honors conferred on the favored master in Rome, at the court of Ferrara, and at that of Urbano.

Portraits of Francis I. of France, Sixtus IV.,[||] Pope Julius II. and Paul III., with those of Francesco Sforza, Duke of Milan, Guidobaldo II., the old Cardinal of Lorraine, Solyman, Emperor of the Turks,[¶] and many more, are enumerated as among the works of Titian, by Vasari, who proceeds, until, losing breath, he says—"Ma che perdimento di tempo è questo? Non è stato quasi alcun Signore di gran nome, nè principe, nè gran donna, che non sia stata ritratta da Tiziano, veramente, in questa parte, eccellentissimo pittore."[**]

Whether Titian did or did not visit Spain, is a question frequently mooted among Italian and Spanish writers; the latter affirming, the former denying, that he did so. Cean Bermudez,[††] almost always correct, maintains that his country *was* so favored, adducing various facts in support of his assertion—that of Titian having taken the portrait of the Empress Isabella, for example; Bermudez contending, that as the Empress did not leave Spain after her marriage, and could not have sat to him elsewhere, so the painter must needs have taken her likeness in Spain. But his opponents finds a reply to this, as they do to the affirmations of his countryman, Palorimino[*]—not so much to be depended on as himself, and manifestly in error, even by his own showing, since he declares the patent of Titian as Count Palatine to have been signed by the Emperor, and by him presented to the master at Barcelona in the year 1553, Charles being then confined by illness at Brussels: the true date of the patent is, besides, 1535, as correctly given by Cean Bermudez. But whether Titian did or did not visit Spain, most essential is it that all who would form a fair judgment of his works should go thither. Speaking of the Venetian school in the Royal gallery of Madrid, Ford, the most important and most valuable of our authorities for Spain, has the following:—" By Tiziano Vecellio of Cadore, there are forty-three pictures—a museum in themselves..... Titian's own portrait is among them, as is the renowned Apotheosis of Charles V. and Philip II., painted in the best period of the master, and considered by many to be his masterpiece. By his will Charles directed that this work—known as the *Gloria*—should always be hung where his body was buried; it remained at San Yuste accordingly until Philip removed the body of his father to the Escorial."[†]

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[*] Mocenigo, Rilatione alla Serenissima Republica di Venezia. 1560.

[†] Rilatone di Messer Bernardo Navagero alla Serenissima Republica di Venezia, 1558.

[‡] "Similmente ritrasse la Signora Laura, che fu poi moglie di quel Duca (Alfonso) che è opera stupenda." [He also painted that Signora Laura whom the duke afterwards married; a truly wonderful work.] See Opere, vol. v. p. 198.

[§] "Delle buone cose che siano in quella casa, è un suo ritratto che da lui fa finito quattro anni sono, molto belto e naturale." [Among the excellent works in that house (the house of Titian) is a portrait of himself, finished four years since, very beautiful and faithful]. Opere, p. 214.

[||] Pope Sixtus died in 1484: that pontiff could, therefore, not have sat for the portrait here in question, Titian being then but eight years old.

[¶] In this case Titian did not paint from the life.

[**] "But what a waste of time is this? There is scarcely a noble of high name, scarcely a prince or great lady who has not been portrayed by Titian—truly a most excellent painter in this branch of Art." Opere, vol. v. p. 208.

[††] "Diccionario Historico de los mas illustres Profesores de las Bellas Artes en Espana."

In the same gallery is, or was, another of Titian's great works, Charles V. on horseback. "This," says Ford, "before its recent restoration, was the finest equestrian picture in the world."

Of the noble "Last Supper," also in the Escurial, one of the grandest of Titian's religious works, and "on which," says Stirling,[‡] "his pencil lingered lovingly for seven years," there is an affecting anecdote, told by Southey, as follows:—"When Wilkie was in the Escurial, looking at Titian's famous picture of the Last Supper, in the refectory there, an old Jeronomite said to him, 'I have sat daily in sight of that picture for now nearly threescore years; during that time my companions have dropped off one after another—all who were my seniors, all who have been my contemporaries, and many, or rather most, of those who were younger than myself: more than one generation has passed away, and there the figures in the picture have remained unchanged! I look at them till I sometimes think it is *they* who are the realities, and we the shadows.'"

"I wish I could record the name," adds Southey, "of the monk by whom that natural feeling was so feelingly and so strikingly expressed." The reader will join him in that wish. The anecdote will be found—with how many other strangest of all strange things rich and rare!—in that strangest of all strange books, "The Doctor."[§]

Ford, speaking of this painting, when describing the *Iglesia Vieja*, declares it to have "hung flapping in its frame for years, like a hatchment in our damp country churches." He adds:—"has recently been repainted."[‖] Repainted! the unhappy word! When Ford wrote the above, some twenty-two years since at least, the picture was still in the refectory where Wilkie had seen it; but we learn from Stirling that it is now in the Queen of Spain's gallery at Madrid. The same author, speaking of the Palace of the Pardo, tells us that "the Hall of Portraits contained no less than eleven from the easel of Titian; likenesses of the Emperor and Empress, of Philip II., of the great captains, Duke Emanuel, Philibert of Savoy, and Fernando, Duke of Alba, with several princely personages of Germany, all of which perished by fire in the next reign."[¶]

It was this conflagration whereby the renowned Venus of Titian was endangered, and which gave rise to the anxious inquiry of the king for its safety, so frequently cited, with his as often repeated declaration, when relieved from this anxiety, to the effect that, "Since this was safe, every other loss might be either repaired or endured."

Returning for a moment to the question of Titian's visit or no visit to Spain, Mr. Stirling, the first authority we now possess as to all *cosas de Espana* connected with the Arts, has the following words:—"In age, as in fame, the venerable name of Titian stands first on the list of Philip's painters. *Although he never set foot in Spain*, he may, for his works, be fairly enough ranked among the artists of the Escorial."[**] In a preceding passage, Mr. Stirling, referring to what Northcote has said on this subject, complains of that else most useful writer's defective arrangement, and that he does with reason is most certain, for do but hear how that dear Northcote treats the matter: first he says—"Carlo Ridolfi, the biographer of Titian, declares that he never came into Spain, but in this he is mistaken. It was not, however, until the year 1553 that he visited that country. During his residence there he executed many admirable works, and received many princely rewards for them." This in the first volume, and at page 109; but what do we next find? Turn to volume second, and you shall see.

"With respect to Titian's visit to the court of Spain, it is necessary to take some slight notice of the subject, were it only for the obstinacy with which the Spanish writers, incautiously followed by others, have given weight to this popular tradition. Don Antonio Palormino Velasco did not hesitate to enumerate Titian among the Spanish painters, asserting that he remained in Spain from 1548 to 1553. It would be lost time to set seriously to work to confute an opinion so void of all probable foundation. I ask those who have still any doubts about it, to read the letters written to Aretin by Titian, and others respecting Titian, from 1530 to 1555, in which will be found from month to month an account of the places in which he was in the course of those twenty-six years. To this is added the testimony of those who have written his life, who all positively affirm that Titian declined the invitations of King Francis to visit France, and those of Charles V. and Philip II. to go to Spain. The annoymous author says 'He was also, after the death of Charles, invited by Philip his son, but in vain, for he would not go to any distance from his native place. But he consoled Philip in a very satisfactory manner by some pictures of more than common perfection.'"

These last words are those of "L'Anonimo;" but as the reader will perceive, our Northcote had with his own hand effectually demolished the assertion of his first volume.[††] There is, besides, yet further testimony in a letter from Aretino to the sculptor Leone Leoni, wherein, replying to an intimation from that artist of Pope Paul's desire that Titian should visit Rome, Aretino assures Leoni of the great master's willingness to do so, "Although he declined the request of Charles V. to the effect that he should visit Spain." The question may therefore be considered as set at rest. It was in Vienna and Bologna that Titian held his well-authenticated intercourse with the "Cesarean majesty;" but not in Spain, where to conclude with the words of Stirling, "he never set foot."

The private and social life of Titian are well known, that of his later years more especially so. We have minute details respecting it from contemporary writers. Lodovico Dolce, his intimate friend, and his less worthy associate, Pietro Aretino, among the number. Of the latter, M. Louis Viardot has a few words that go far to explain what has been called the friendship subsisting between Aretino and the great master. Viardot is speaking of the portraits by Titian in the Pitti Palace, and among others, he names that of "Pietro Aretino, le poète satirique *et redoute*, l'ami et le conseiller du peintre, *qui le craignait cependant plus encore qu'il ne l'aimait*."[‡‡]

The contemplation of his earlier and more difficult, if not more laborious, days, has still greater interest in the estimation of the present writer; but their character has been sufficiently intimated, and, remembering who was presiding genius of the festive assemblies enlivening his later years, few, will, perhaps listen with indifference to what Francesco Priscianese says of "a sort of Bacchanal feast" to which he had been invited. This was held "in a delightful garden," says Priscianese, "belonging to Messer Tiziano Vecelli, a most excellent painter, as everybody knows, and a person truly fit to provide with his affability every honorable entertainment. With the said Messer Tiziano were assembled—as like always desires like—some of the most rare geniuses at present in this city; and of ours, principally, Messers Pietro Aretino, a new miracle of nature. Next to him, the great imitator of it with the chisel, as the provider of the entertainment is with the pencil, Messer Jacopo Tatti, called Il Sansovino; then Messer Jacopo Nardi; and, lastly myself. Thus I was the fourth part of such great wisdom. Here, before they spread the tables, as the sun, though the place was shaded, still made the force of his beams to be felt, the time passed in contemplation of the most excellent paintings, of which the house was full, and in talking about the true beauty and loveliness of the garden, which every one was singularly pleased with and much admired. It is situated at the furthest part of Venice, on the edge of the sea, looking over to the lovely isle of Murano, and other beautiful places, This part of the lagoon, so soon as the sun had gone down, was covered by a thousand gondolas, adorned with the handsomest ladies, and resounding with divers harmonies, with vocal and instrumental music, which till midnight accompanied our delightful supper." There is much more, but this shall suffice; not that the picture is anything less than charming, taking the site and the master of the feast well into the account, but because all can now prefigure to themselves the delights that followed.*

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[*] "Vidas de los Pintores Espanoles." The work is not for the moment within reach of the present writer, nor is that of Bermudez, cited above; but the reference to either will be easily made.

[†] Ford's "Handbook for Travellers in Spain," pp. 429, 430. Edit. 1847. This reference is to the *second* edition, but let him who loves to see a good author at his best, obtain the *first* for his general use, that of 1845, namely.

[‡] Annals of the Artist of Spain, vol. i. p. 184.

[§] Vol. iii. p. 235.

[‖] See Handbook, 469.

[¶] Stirling, "Annals of the Artists of Spain," vol. i. pp. 184, 185.

[**] Annals of the Artists of Spain.

[††] See "Life of Titian," before cited, vol. ii. pp. 178, 179; also vol. i., chap. xx., p. 309.

[‡‡] See "Les Musées D'Italie," par Louis Viardot, p. 180.

Then come the "Suppers"—no inconsiderable part do they perform in that period of the master's life which he passed with Aretino, Sansovino, and the rest—the suppers, I say, to which "Messer Tiziano" was, in his turn, bidden.

"A brace of pheasants, and I know not what else, expect you at supper with the Signora Angiola and myself," writes Anretino, "therefore come, that Old Age, the spy of Death, affording us continual amusement, may have nothing to tell his master, save that we are old."

Or if any be further curious as to the *menu* of these "feasts of intellect," let him know that the grosser material need not be wanting even now; let him see only that he gather the guests befitting them, and the Titianesque supper may yet be imitated, come what may of the rest.

"For the fine and excellent turkey your true kindness sent me from Padua," writes Aretino to an occasional *convive*, "I give you as many thanks as he had feathers in the tail and wings. The ambassador of Mantua, Monsignor Torquato Bembo, Sansovino, and Titian enjoyed the turkey, bestowing blessings on the giver at every mouthful." And again—"It seemed to Titian, who gives life to colors, and to Sansovino, who gives breath to marble, that it would be almost ungrateful for me alone to thank you for your gift of pickled fennel and spice cakes; they, then, both now with me, sending their words, and adding the testimony of their good appetite in the eating thereof—they being fond of such savory food—confess to be much obliged to you for it." To another of their comates the same writer says—"The pears you sent from Vicenza are fine and juicy; nor need you ask whether Titian shares them with me, for it is well known to you that we sup almost always together."

Is that enough? or will you have a continuance of these details? They are in sufficient abundance, but the sources are accessible to all; wherefore and for the present time, I beg you to agree that those given may suffice.

No lover of Art remains long in Venice without turning his steps towards the ancient dwelling of Titian, in the Via di San Canciano; but the first visit of the present writer was also the last: although more than once in Venice since that first was paid, we have not again returned to the desecrated dwelling of the honored master. Sordid chambers were at that time crowded by threes and fours within the space of those wide halls, once resounding to the majestic step of Titian. This state of things contrasted painfully with what we had just before seen, and again beheld long afterwards, in the Casa Buonarroti at Florence, and altogether offered no temptation to return.

Painful and saddening is the contrast presented by the closing scene of this great man's life, extended to within a few months of a century, to be extinguished at last amidst the horrors of pestilence and desolation of abandoment: but the details are fully known, and we need not dwell on them. Some writers have spoken of Titian's son Orazio as squandering the rich patrimony left him by his father in scenes of unworthy riot; but these have confounded the younger son Orazio, with the elder, Pomponio, who did, without doubt, permit his father's priceless works to be disgracefully scattered, and was himself unworthy to be called the son of Titian. As regards Orazio, if he did not expire on the same bed with his father, as many affirm, but was carried forth to the public hospital, with some faint hope of saving his life, as is declared, and with a better show of truth, by others, yet is it known that he did not long survive the effects of the plague, so fatally raging; nor, had he done so, was Orazio of a character to offer so much dishonor to his father's memory, as was inflicted by the heartless conduct of Pomponio.

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* See "Northcote's Life of Titian," vol. ii. pp. 141—224, *et seq.*

From the Liverpool Photographic Journal.

THE ALBUMEN PROCESS.

BY MR. JAMES ROSS.

[Read at the January Meeting of the Photographic Society of Scotland.]

"I shall commence with the preparation of the albumen. I take eggs of medium age, and having selected as many as I think will be required to coat the plates to be prepared, I break them one by one on the edge of the vessel that is to contain the albumen, and then separate the white from the yolk. Having picked out all the insoluble parts, I add to the albumen 30 drops of a saturated solution of iodide of potassium, and half a wine glassful of water to each egg. The whole is then switched up into a large mass of froth, and set aside till it falls. I should mention that it is very essential that the albumen be thoroughly beaten up; the froth must be quite stiff and thick. More or less iodide of potassium may be added, according to the quantity of nitrate of silver to be subsequently used, and the degree of sensitiveness desired; but it is not advisable to increase the quantity of chemicals beyond a certain point, as it is liable to cause the albumen to crack off.

"I now take a clean glass plate, and having exposed it for a moment to steam from hot water, I pour the albumen plentifully upon it. The effect of the steam is to make the albumen flow freely over the plate. As soon as it has run over the part, the albumen is poured off. It is unnecessary to preserve what is poured off, as, unlike collodion, it must never be used again in the preparation of plates, even though again beaten up. I now hook the plate by the two opposite corners to a piece of bent wire, to which is attached a piece of worsted thread, so that when I hold the thread the plate is in a horrizontal position, with the prepared face downwards. Holding it in front of a clear fire, or better, above a close stove, a rotating motion is given to the plate by twisting thread, exactly as in the common form of kitchen jack. The centrifugal force then produced, causes the albumen to spread equally over the whole plate, what is superfluous running off from the edges. By no other means can so even a coating be obtained, and photographers are greatly indebted to Mr. M'Craw, of Edinburgh, for the exceedingly ingenious and simple invention. The plate is made to revolve till slight cracks appear in the albumen at the edges of the plate. It must now be at once removed from the fire, for if at all overheated, the nature of the albumen is altogether changed. The cracks soon spread of themselves over the whole plate, which shows that the coating has become equally firm. In this state the plate may be kept some time.

"I now proceed to sensitize the plate—First, I breathe very freely over the whole of it, for the purpose of in some degree resoftening the albumen, as it absorbs far more silver in that state than if very hard and dry. A bath is prepared with a 120 grs. of nitrate of silver, and 10 drops of glacial acetic acid, to the ounce of water. I dip the plate in this bath by a single movement, and immediately remove it. It is now to be rinsed, say three times, in the same cold water. If too much washed it will lose sensitiveness, and if too little, the silver will crystallize on the surface of the plate. It is now ready for exposure in the camera."

To illustrate the operation of taking and developing a picture on a prepared plate, a copy of a bas-relief of "Night," by Thorwaldsen, was arranged so as to be lighted by a single common gas-burner of a larger size. The camera was provided with a double achromatic lens of Voightlander, and fifteen minutes' exposure were sufficient to secure a good impression.

On removing the plate from the camera, a saturated solution of gallic acid was poured on it, which caused the picture to appear in about two or three minutes, of a beautiful clear red color. A little of the silver bath was now added to give density to the picture. In the of course fifteen minutes it became perfectly vigorous and black in the lights, and clear and transparent in the shadows.

"About one half the time of exposure in the camera would have been sufficient, had the picture been allowed to develop slowly: or had pyrogallic acid been used in the development. Had honey been mixed with the albumen, the action would have been far quicker and more magical: but though pyrogallic acid acts more quickly, it does not give so intense pictures as gallic acid; and I have never succeeded in getting large pictures free from blisters when honey was used.

The picture was now fixed by pouring over it a solution of hyposulphite of soda, 40 grs. to the oz. of water, and then washed thoroughly by pouring over it a stream of water as gently as possible, so as not to break the coating of albumen. When dry it was finished, and, needing no varnishing, was ready for printing.

"I may add, that nothing can be easier than to coat plates for taking views of ruins, as a defect in the spreading of the albumen sometimes makes a positive beauty in the picture, as defective skies can be all stopped with daubs of black paint. But it is a more difficult thing to coat large plates all over so evenly as to give a picture of sky and distance, united in harmony with the foreground. This can be done however, if the manipulation of the albumen is well managed, and then the picture is more satisfactory and truthful than when the same is attempted with collodion or paper. By either of the latter processes the sky is generally so dense that when printed it leaves the paper so clean and clear that the result is like a white-washed wall, instead of having an appearance of distance and air. In such photographs there is generally no "bridal of the earth and sky," but rather a complete divorce. Of course albumen is too slow a process to give moving clouds, but it invariably gives the *feeling* of sky and air."

"Under favorable circumstances, with a double Voightlander lens, from three to four minutes' exposure in the camera would be sufficient: the well-known views of Edinburgh, from Nelson's monument, which were about twelve inches square, having been taken with a single achromatic lens, had an exposure of about twenty minutes. Prepared plates would keep good without any material diminution of sensitiveness for two days before taking a picture; on keeping them longer than that time a good result might still be obtained, but the exposure would have to be correspondingly lengthened. They might be quite well developed a week after the plate had been prepared and the picture taken."

From the Livevpool Photographic Journal

MANCHESTER PHOTOGRAPHIC SOCIETY.

Meetings of the council and of the members of this society were held at the house of the Literary and Philosophical Society, George-street, on Wednesday evening, the 4th instant.

At the meeting of the council, Mr. **Lund** in the chair, the secretary (Mr. S. Cottam) was directed to inquire from Mr. **Delamotte**, who is appointed to superintend the photographic department of the Art Treasures Exhibition, what arrangements are being made with reference to that department; and Mr. Delamotte was elected an honorary member of the society.

A resolution was adopted to the effect that any member of the Liverpool or other Photographic Societies, when visiting Manchester, may be permitted to attend the meetings of this Society on signing his name in the visitor's book.

In compliance with the request of several members, Mr. Sidebotham will, at the next meeting of the members, read a paper on the collodio-albumen process.

A list of subscriptions to the testimonial to Mr. F. Scott Archer, the inventor of the collodion process, was read.

At the meeting of the members, **Professor Frankland** presided.

Mr. **Edmund Burns** submitted for inspection and explained a newly constructed camera-stand, particularly adapted for landscape photography. The novelty consisted in a double tripod, with telescope movement, the upper half of each leg being secured by a screw. It has been found difficult to adjust a camera sufficiently level to take a view without distortion; the difficulty is greater on unlevel or soft ground, and, a leg having been once moved, it cannot sometimes be re-adjusted with the requisite stability. By this stand, the necessity for disturbing any one leg is obviated; a screw being slackened, the leg may be either lengthened or shortened, and a corresponding difference thus obtained in the level of the table upon which the camera stands.

A paper upon the collodion process was read by Mr. L. **M'Lachlan**, to whom the thanks of the Meeting were voted. (We did not receive the copy in time for insertion in this number, but it will be given in our next,—Ed. L. &M. P.J.]

Several observations were made in reference to the cleaning of glass plates. Mr. Neville stated that he had found old collodion a capital detergent; and the chairman said that, considering the materials of which it is made, it ought theoretically to be the best cleansing substance. Other members stated that they had done the same thing.

Mr. **Sidebotham** said that the society might now be considered as fairly located within that building, and the members must, therefore, consider how the society could be made most useful. As one means of utility, he proposed that a portfolio should be obtained and deposited in the library of the Literary and Philosophical Society, and that each member should contribute a few of his best productions every year, stating at the back certain particulars as to the processes and the materials used. In a short time such a collection would be valuable and interesting, exhibiting, as he hoped it would do, any peculiarities of development, as well as the gradual improvement made by the members in their practice of the art.

The motion was seconded and carried.

A collection of M'Pherson's Roman photographs, and two photo-lithographs, were inspected with much satisfaction.

The proceedings closed with an expression of thanks to Professor Frankland for presiding.

COLLODION APPLIED TO SURGERY.

Translated for the Photographic and Fine Art Journal, from the French, by **Ange Marcieca Rossi**, Quarter-Master of the late British Legion.

We know the curious use which has been made of the pyroxyline (in combination with the monohydrated azotic acid, the cellulose gives birth to a product called pyroxyline or guncotton), for the fabrication of collodion, which plays such an important role in photographic operations. From the method of Mr. Gardiner and the effectual experiments of Mr. Payen, together with Mr. Poinsot, the surest as well as the more economical mode of preparing cotton destined to be employed in the formation of collodion, consists in mixing 1 part in weight of pulverized nitate of potash, with 3 parts of concentrated sulphuric acid. The cotton is immersed in this mixture and removed to the bottom by a spratula; let it react during one or two hours, then clean it with water and dry it.

We must add that the solution of the product is obtained more steadily and more correctly when it is plunged quite hot from the oven at a temperature of 45° cen. or 113 Fah. into æther containing $\frac{3}{100}$ of alcohol.

In medicine and surgery, collodion is one of the most valuable agents. This substance spread on linen, can be employed in covering large sores and wounds; even is preferable to the adhesive plasters in protecting them from the action of the air.

From the Liverpool Photographic Journal.

REMARKS ON THE PHOTOGRAPHY OF THE MOON.

BY WILLIAM CROOKES.

Besides the picture taken in America—which are almost valueless as moon maps, the sides being reversed in copying from the daguerreotype plates upon which they were originally taken—the moon has been photographed by professor Phillips, Father Secchi, MM. Bertsch and Arnauld, Messrs. Berry, Forrest and Edwards, of Liverpool, and Mr. Hartnup and myself. It is interesting and instructive to compare among themselves the means employed and the time occupied in taking the impression on these several occasions.

Professor Phillips' telescope has a sidereal focus of 11 feet, and an aperture of 6¼ inches; consequently the brilliancy of the moon's image at the focus is augmented 26 times over what she appears to the naked eye. The average time occupied for the collodion plate to receive the impression was about 3 minutes.[*]

Father Secchi's telescope having a sidereal focus of 18 times its aperture, the moon's image was intensified 37·8 times, and the time required for the impression was on an average 6 minutes.[†]

M. Parro's glass of 49 feet sidereal focus and 20 inches aperture, gave a moon image 12·3 times brighter than she appears to the naked eye, and the average time of taking the picture was 17 seconds.[‡]

Mr. Hartnup's telescope being 12½ feet focus and 8 inches aperture, augments the intensity of the moon's image at its focus 35·1 times. The time which was required for the photograph of our satellite to be taken, on the occasion of the meeting of the British Association at Liverpool, in 1854, was about 2 minutes;[§] and under the same circumstances I succeeded in obtaining perfect and intense negatives in 4 seconds. These, however, were taken under very unfavorable circumstances, the temperature being below the freezing point, and the moon at a considerable distance from the meridian, which necessarily caused both a diminution of the light and also a diminished sensitiveness of the collodion film.

The rapidity with which the above pictures were taken may be better understood by comparing them with those of terestial objects under similar circumstances. According to Herschel[‖]—

"The actual illumination of the lunar surface is not much superior to that of weathered sandstone rock in full sunshine. I have frequently compared the moon setting behind the grey perpendicular facade of the table mountain, illuminated by the sun just risen in the opposite quarter of the horizon, when it has been scarcely distinguishable in brightness from the rock in contact with it. The sun and moon being nearly at equal altitudes, and the atmosphere perfectly free from cloud or vapor, its effect is alike on both luminaries."

Thus, by comparing the power of the Liverpool object glass with that of our ordinary camera lens, its focal length being nearly 19 times the aperture, and the moon's image being copied by its means in 4 seconds, we find that it is equivalent to copying sandstone illuminated by the sun in 4 seconds with a lens 4½ inches focus and a little less than a ¼ inch diaphragm; or with a compound lens having an aperture of one inch, and the same focal length, in a quarter of a second.

I attribute greater sensitiveness which I obtained to the excellence of the materials employed; and in the next number I hope to be able to give, along with an abstract of the Royal Society's paper, an account of the way in which the whole of these prepared, sufficiently explicit to place the extraordinary rapidity of action which I obtained, in the power of any one who may take the trouble to follow carefully my instructions.

From the Liverpool Photographic Journal.

LONDON PHOTOGRAPHIC SOCIETY.

The anniversary meeting of the above Society was held on Thursday, the 5th instant, the President, Sir F. Pollock, Lord Chief Baron, occupying the chair.

The minutes of the last meeting were read and confirmed, and several new members were elected.

The President then addressed a few remarks to the meeting, relative to the progress which had been made in photography during the past year.

The Auditors' report on the accounts of the Society was then read, and appended to it were some observations by Mr. M. Marshall, suggesting several improvements on the present system of keeping the accounts, so that the work of the auditors might be simplified another year.

The Secretary then read the annual report, of which the following is an abstract:—

The council commenced with the pleasing duty of once more congratulating the Society on the flourishing condition in which it is at present, as shewn by the balance sheet, which announces a deposit account at the bank of £1000; the accession of new members, which is more than double that of the former year; and the profit on the Journal, which for this year has been more than £300. The Exhibition was stated as being far in advance of other years, both in number and variety of contents; already there is a receipt of £25 over the corresponding monthly income last year. The royal visit and soirée were then alluded to, the latter as having already caused a large increase of new members. The photographic department of the Art Treasures Exhibition at Manchester was noticed, and the attention and co-operation of members of the Society were desired towards the furtherance of the splendid scheme already marked out. The recognition of photography as one of the educational wants of the times, was then mentioned in connection with Mr. Hardwhich's recent appointment at King's College; and the increase of provincial societies was adduced as a proof of the great interest and popularity which photography has attained. The high position which English photographers held at the Brussels Exhibition, and the fact that most of those who obtained prizes were members of this Society, could not fail to be gratifying to the general body. The council then stated that they had kept in mind the necessity of providing proper meeting and reading rooms for the members, and much time and trouble had been spent in the negociation for taking Uxbridge House on joint tenancy with the Institute of British Architects, which body had, at the last moment, unaccountably refused to receive the Society as joint tenants. They trusted, however, that another year would see them provided with accommodation suitable to the importance of the Society. It was them stated that Mr. Thomas Chambers, M.P., would shortly bring before parliament the question of copyright, as applied to photography, and, in conclusion, attention was drawn to the important papers read at the meetings, as evidence of the assistance which the Society gives to the science and practice of photography.

The following are the council and officers for the ensuing year:

President, The Right Hon. Sir Fred. Pollock, Lord Chief Baron.

Vice Presidents: H. W. Diamond, M. D., F.S.A., Sir W. Newton, John Percy, M.D., F.R.S.

Members of Council.—Mark Anthony, Ernest Becker, Ph. D. Professor Bell, F.R.S., Sir Geo. Clerk, Bart. The Earl of Craven, William Crookes, P. W. Fry, R. Fenton, T. F. Hardwich,

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[*] Athenæum, 1853, page 1131.

[†] Cosmos, Vol. 9. pp. 425 549.

[‡] Cosmos, Vol. 9. p. 444.

[§] Liverpool Photographic Journal, Vol. 1., pp. 34, 72, 138.

[‖] Herschel's Outlines of Astronomy, page 249.

T. G. Mackinlay, F.S.A. T. A. Malone, H. Pollock, M. J. Rippingham, A. Rosling, *Treasurer*, George Shadbolt, G. Stokes, B. B. Turner, C. Vignoles, F.R.S. F. H. Wenham, Sir T. M. Wilson, Bart.

Secretary.—Rev. J. R. Major, M.A., F.S.A.

After the report was read a discussion ensued respecting the necessity of obtaining rooms for the society, in which Sir W. J. Newton, Mr. Anthony, and Mr. Crace, took part. Upon the latter gentleman complaining that the committee appointed for that purpose had been negligent in performing their duties, Mr. Anthony stated, that no one, who had not experienced the difficulties of finding fitting accommodation for the society, could have the least idea of the labor thrown upon the committee; and concluded by proposing that Mr. Crace be appointed one of a sub-committee for carrying out the above object, when doubtless those difficulties would be speedily overcome.

A description of a machine for washing positive prints after fixing was then read by Mr. R. Fox. The following is an abstact of the paper, which was illustrated by diagrams:—

In this machine the principle of employing a sponge in the washing of positive pictures is adopted. It has been made for prints of a size of 6 by 8 inches and under. A slab of plate glass is supported on two pieces of one inch deal, placed cross-ways to prevent warping, and firmly bolted together with screws. Over the slab of glass a piece of very fine calico is firmly stretched, and a frame is made to fall over this covered slab and blocks of wood, across the top of which another piece of fine calico is stretched. These are so arranged that a print can be laid on the piece of calico immediately covering the slab of glass, and then the second piece of stretched calico may be placed immediately over it. It is now ready for sponging, which may either be done by hand or by means of a lever which is attached to the upper part of the framework. By its means an oblong bag containing a sponge the size of the slab of glass may be pressed in close contact with the two pieces of calico which enclose the print. The pad of sponge is constantly wetted by means of a tap which is kept running into a funnel fastened on the top of the lever, and distributing the water uniformerly in the interior of the sponge bag. The lever is to be moved with a quick and firm motion so long as is considered necessary. The author considers that five minutes washing with this machine is equal to five hours, or perhaps five days steeping, in the ordinary manner.

There were exhibited on the table several very beautiful specimens of portraits, both colored and plain, taken by Mr. Mayall, and printed by him on his artificial ivory surface, formed by coagulating a paste of sulphate of baryta and albumen.

A new stereoscopic camera and dark box, invented by Mr. Atkinson of Manchester-street, Liverpool, was also exhibited.

The meeting, which passed off more harmoniously than any previous anniversary of the Society, then terminated.

HELIOGRAPHIC ENGRAVING AND DAMASQUEENING.*

REVIEW BY ANGE MERCIECA ROSSI, ESQ.

As usual, I shall begin by giving the roots of the word Heliography, (ἥλιος) sun, (γραφη) to draw. But the extension of these words seems so great, that I fear my readers may not be satisfied. I am, however, inclined to think that from the reading, a more correct idea and definition of the Greek word may be obtained. This branch will be a great commercial improvement of the Photographic Art.

On perusing the interesting book of M. Niépce de St. Victor, you may see that he had the idea to apply his varnish on marble in making engraving in relievo, or in hollowing.

The result will be a very great assistance to sculptors in marble, in the manufacturing of ornamentals, bronzes of art, and chimney-pieces or mantel-pieces.

Every species of marble is not proper for this kind of engraving; it should be hard, the grain of the surface very smooth, and of a uniform color, and of course without spot or vein, as are generally the smooth, black marbles, and the blue and yellow lithographic calcarious stone used by marble carvers.

The white marble of Carrara cannot be employed, though very hard; it is of too rough grain: however, it might be used for mosaic purposes, and for engraving common ornaments with plain tints.

The bitumen of judea being in the composition of the Heliographic varnish, led M. Niépce de St. Victor to embrace the opportunity of investigating minutely every kind of bitumen of judea which had never before been tested, in spite of the observations of a few pedant-learned men, whether they should take his analysis with a scientific correctness.

I cannot enter into a description of all bitumens, but will draw up the qualities of the best.

The bitumen coming undoubtedly from Judea has the vitrious breakage, is of a brilliant black, and is nearly scentless, except when heated; a slight odor of bitumen or mummy predominates. Pulverized, it is of a dark brown. This bitumen is the most sensible of all to the impression of air and light; very proper to be used with the camera obscura, when, however, it is not too sensible, for in such cases it would produce obscure drawings.

It certainly is a great improvement for engravers to possess such a good varnish; and the difficulty has been to obtain a varnish proper to give all half tints in the reproduction of a photographic proof, or of a printed drawing, and at the same time to resist aqua fortis. The peculiar qualities of this bitumen will produce those two results.

The varnish for marble ornaments, and all operations by contact, should be prepared in the following manner, except the bitumen having all the properties of the described one, must be less sensible to air and light:

BITUMEN VARNISH.

	French weight.	Eng. Troy weight.
Bitumen........	4 grammes	60¼ grains
Benzoin........	80 "	.......1212 "
Essence of citron.	10 "	.... 151 "

This quality of being less sensible gives to the varnish the advantages of obtaining all half tints, but it will not resist the action of the aqua fortis if before employing it you do not expose it one quarter or half an hour to the sun, or more, according to the intensity of the light, which gives to it more resistance, and at the same time a little sensibility; still, you must avoid rendering it too sensible, for then the half tints cannot be further obtained.

The operations require such care and delicacy of proceeding that it seems rather difficult; but a little experience will pay ten fold by a correct, neat, and most striking drawing.

In leaving this varnish to a weak light for at least one month, it will be found preferable, and you obtain a water-proof varnish without being too sensible. But when a varnish is too sensible, and thus gives veiled drawings, by the addition of bitumen, benzoin and essence, you obtain the same degree of fluidity and a proper varnish. The bitumens most sensible to light are those which most resist the aqua fortis; but as they give only veiled drawings, they are proper only to be used with the camera obscura, and then put only 2 grammes or 30½ grains (Troy weight) of bitumen in the composition.

It can be used in reproduction by contact of ornamental drawings with plain tints; and I would remark that the most sensible bitumen is better for mechanical engraving, while the less impressionable is better for common engraving.

Here I cannot do better than let M. Niépce de St. Victor speak for himself on the description of the operation: "Now," he says, "suppose I operate on a plane of marble or lithographic stone? The stone being well cleaned with benzoin, and afterwards with alcohol, I cover it with a coat of heliographic varnish, and when it is dry, I put on an ornamental drawing, or a *photographic proof* (*a positive one*) on an albumenized pane of glass, or on thin paper. The ornamental drawings must be on a thin paper, and that used in photography is the best. I must say that the action of light should be longer than when operated on metal, especially for the proof on black marble; because it is with the color of stones the same as with the color of metals, that in a similar state the action of light is slower on stone than on metal. The application of dissolving matter and the cleansing is the same as on metal, but on no account should the former be employed before the stone is cool; because if it has been longer exposed to the solar beams, it often acquires a great warmth, and compels the varnish to fall off while you are pouring on water to prevent the action, unless the water has the same temperature as the stone."

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* Copyright secured.

The hollowing on marble is not less worthy of attention. He takes some water acidulated with azotic acid—which is preferable to other acids—made weak by water, because it is better to have a weak acid in order to prolong the action.

If, for instance, you intend engraving a photographic proof, you ought to make a feeble hollowing for the purpose of preserving all the delicacies and half tints of the drawing. In this case a feeble hollowing is sufficient to roughen the stone, and obtain a drawing by reflexion of light, as the daguerrean drawing.

For an ornamental drawing having only plain tints, it is necessary to have a deeper hollowing, because the hollows will keep more and better all the bodies you put in, and bring out the drawing, as golden, mastic, or oil ink of different colors.

To hollow deeply an ornamental drawing having only plain tints, you can use the cylinder to varnish the stone a second time; you roughen again, and repeating this operation, you can obtain hollows of the requisite depth. These observations led M. Niépce de St. Victor to numerous and useful discoveries. For instance, in covering again the proof with a coat of heliographic varnish, then exposing it to the light a sufficient time to harden a little the varnish, next pouring the dissolvent substance which takes away the varnish from all the hollows obtained the first time, he will have deeper hollows.

On heliographic proofs the action of the aqua fortis can be observed in the following manner: If the acidulated water attacks the calcarious stone, a great number of little pearls or globules of water are produced by the carbonic acid which is spread while the hollowing takes place; this effervescence must be very feeble, because if it is strong the water is too acid, and the hollowing is made too quick, and becomes too deep for some purposes. Where a slight hollowing is necessary, you must watch the action of the aqua fortis with a lens, that you may stop it at the requisite time.

Some testing of the varnish, and a proper time of exposure to light, will be required, if the proof has in all respects the conditions to obtain a good hollowing; because on marble you must have exact and correct results, on account of the impossibility of retouching it.

In placing a plane of marble, or a lithographic stone, in a camera obscura, you may obtain a drawing from nature; and if in this case you reproduce a basso-relievo, or a medallion, you will have a most striking effect of relievo, especially by using a feeble hollowing.

I think this process of engraving on marble will be very useful in the arts, because you can vary, indefinitely, the effects you wish to obtain. In my opinion, a light engraving on marble ought to be preferred, on account of its simplicity and unalterability.

LITHOGRAPHIC IMPRESSIONS.

I have to consider a second application of this new process of engraving on stone: it consists in printing lithographically a drawing engraved by hollowing, or in relievo. Of course, the difficulty was to ink on a smooth and a fine grained stone, for obtaining a neat and delicate drawing. You proceed on stone as on marble, taking care not to hollow too deep, that you may preserve all the half tints of the drawing.

M. Niépce de St. Victor, having the stone engraved, says: "After taking away the varnish, I clean perfectly the engraving with alcohol and a soft linen; I wet with ammoniacal water; I fill in the hollowing with lithographic grease ink; I wipe and clean the stone for the purpose of leaving the ink in the hollowing only.* In this state, I pass over the stone a soft brush, with acidulated water, to roughen the smooth surface, and next a sponge, with gummed water, which remains on the rough surface of the stone."

It must be particularly observed that the cuts of the engraving have been always preserved by the grease ink, and that if you use the cylinder with the lithographic ink—proper for printing—the cuts of the engraving will be inked only, and you can print.

For the engraving in relievo, he says: "The stone having been under the action of the acidulated water, the varnish is taken off, and the stone is cleaned with alcohol; then you cover with the gummed water, which fixes itself on the bottom of the rough stone; next you clean the relievo with a linen and alcohol, then you may ink with the cylinder."

It is well understood that, for engraving in relievo, a *negative photographic proof* ought to be used. The result of these impressions is to have superior proofs to those obtained when the stone is not engraved.

M. Niépce de St. Victor's book will seem to many readers full of repetitions, and sometimes of rather useless details; but it ought to be taken in account that he has been, if I mistake not, unable to avoid these imperfections inherent to all explanation of discoveries. What is well conceived is always elaborately explained.

HELIOGRAPHIC DAMASQUEENING.

I did not consider, in the above article, the bitumen varnish used in damasqueening, because I give the priority to the bicromate of potash; there is no equal success in using the two processes. If the bitumen of Judea gives very curious results, they are so uncertain that they may be considered as impracticable. When the benzoin, the oil of naptha, or the essence of lavender, have taken off the coat of varnish not affected by light, the remainder of bitumen has lost all its qualities to resist acids, they penetrate it, and it does not protect any more the copper. You fail in so many operations that this process would become impossible, and at too high price for manufacturing purposes, which require sure and rapid results.†

M. H. Dufresne discovered the use of the bicromate of potash for damasqueening. By means of photography, or by a mechanical process, with an amalgam of mercury and gold, he has obtained partial arabesques on a superficy of metal, amalgamable by its nature, which consequently would be gilt entirely, without the use of the following process: With the voltaic pile, cover with a first coat of copper the surface of metal you wish damasqueened, the silver, for instance; spread over it a coat of nickel, antimony, iron, or any unamalgamable metal, then you cover it with another coat of copper, on which you operate photographically, as on steel with the bicromate of potash. Nearly all photographic processes answer to this damasqueening, provided they retain a sufficient resistance to the action of acids, with which you take off the copper. This first uncoppered accomplished, you take away the protecting matter of the drawings with warm turpentine, and it remains arabesque of copper on an unamalgamable bottom. You gild by the process of gilding by fire, now in use, which is utterly useless to explain here, being universally known: then you destroy the unamalgamable coat with acids which do not alter gold, and when you reach the first copper coat (deposited on silver) with cold ammoniac, you dissolve the copper without affecting the silver.

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* To obtain a greater quantity of ink in the hollowing, let the first coat dry a few days; then re-covering with another coat, you will have more intense blacks, resisting stronger the acidulated water.

† I must apologise if I do not describe M. Niépce de St. Victor's bitumen process for damasqueening, thus preventing the reader from comparing both; I acted with an eclectic point of view.

By these means you may obtain, with the photograph or with drawings, a partial damasqueening by mercury or by fire, of the greatest neatness, purity and firmness, on an unamalgamable metal of its nature.

One important thing is the practicability of obtaining by the photograph, or without the assistance of light, gilding in relievo by the biting in of acids.

The continual action of aqua fortis admits not only the copper-plate engraving,* but also the gilt, (which resists, without alteration, an immersion from three to four hours in a bath of diluted nitric acid,) to make with some precautions printed drawings in the middle of a typographic text, as with the engravings on wood, advantages not obtained by electric gilding, it giving only a coat of gold dust, permeable by acids, air and light; that is the true reason of the want of solidity in galvanic gilt on iron. This porosity of the coats deposited by the pile is so certain, that you may be easily convinced by making a silver vase with the galvano-plasty, then filling it with water, you will see an immediate infiltration.

From the Liverpool Photographic Journal

LUNAR PHOTOGRAPHY.

BY FATHER SECCHI.

There are several most important scientific questions concerning the present physical constitution of our satellite which photograpy is destined to solve. Thus, Lambert believes that the centre of the disk of the full moon is much more luminous than the borders; photography can answer this question in the same way that the thermo-electric multiplier has resolved the question of the greater intensity of the heat rays emanating from the centre of the solar disk. Moreover, the distribution of light and shade on the surface possesses much interest, and the relation between the reflecting powers of lunar subtances and well known terrestrial bodies may lead us to some knowledge of the nature of our satellite. My researches have led me to think that the lunar surface is similar to the volcanic rocks on the earth. Photography also shows very well the effect of the solar penumbra on the moon, and perhaps we may have from the same source a solution of the question relative to the atmosphere of our satellite. You perceive that these questions are on subjects of great scientific interest.

With respect to the size of the photographic images of the moon, I am enabled to magnify them to six or seven inches in diameter; but I am convinced that to have a good lunar map, it must not be taken at one time. In the full moon the craters are indiscernable to the eye, on account of their small absolute height, and thus in this phase only a general view of the surface can be seen. I even think that to get a good picture it will be necessary to employ a daguerreotype plate, as collodion in drying, and even during the operation, is liable to be distorted. After this general outline has been taken, then by taking the phases one by one, the details can be filled in. In the last pictures craters of only a few seconds' diameter are preserved in all their accuracy, their interior cavities being well traced and perfectly black. Unfortunately the light is extremely faint, and if great sensitiveness is wanted there is much risk of spoiling the picture. I am not acquainted with the details of the manipulations as practised in other observatories, but having heard some surprise expressed at the long time employed in taking these pictures, I can say that this was not the fault of the collodion, as in an ordinary camera a picture could be taken with it in a second, and even less. But it must be borne in mind that in photographic lenses the focal length is at most four or five times the aperture, while in my object glass this focal length is eighteen times the aperture, which very considerably retards the action of the light. For that reason I have adopted, as a comparison, the time employed to take a terrestial object with the same glass. In these experiments it has appeared to me that the focus of the lens for the moon ought to be lengthened more than for tersestial objects—a fact which will be interesting as bearing upon the constitution of the matter of the moon.—*Cosmos.*

REDUCTION

Of Fahrenheit's Degree in the Centigrade and Reaumur Scale.

Compiled and expressly revised for the Photographic & Fine Art Journal,
BY ANGE MERCIECA ROSSI, ESQ.

We give the following tables exhibiting the value of the French decimal weight and the English Troy weight, and *vice versa*, for general purposes.

French weight		English Troy weight	
Milligramme	=	0·0154	grains,
Centigramme	=	0·1543	"
Decigramme	=	1·5434	"
Gramme	=	15·4340	"
Decagramme	=	154·3402	"
Hectogramme	=	1543·4023	"
Kilogramme	=	15434·0234	"

English Troy weight										Fr. dec. wt.
pound		ounces		drachms		scruples		grains		grammes
1	=	12	=	96	=	283	=	5760	=	372·96
		1	=	8	=	24	=	480	=	31·08
				1	=	3	=	60	=	3·885
						1	=	20	=	1·395
								1	=	0·0447

In Fahrenheit's thermometer, which is universally employed in this country and England, the freezing point of water is placed at 32 deg., and the boiling point of water at 212 deg.

The Centigrade's thermometer which has been used in Sweden under the name of Celsius' thermometer, and is now most generally employed on the continent of Europe, marks the freezing point zero, and the boiling point 100 deg. I must add that the positive sign + preceding the number of degrees above zero is necessary, as well as the negative mark — for degrees below zero. French works very seldom using the words above or below zero, but + or — zero.

In Reaumur's thermometer, used in France before the revolution, the freezing point is at zero, and the boiling point at 80 deg.

From the above statement, it is evident that 180 deg. Fahrenheit are equal to 100 deg. of Centigrade and 88 of Reaumur's; or, 1 deg. Fahrenheit's = $\frac{5}{6}$ deg. Centigrade's = $\frac{4}{9}$ deg. Reaumur's. It is easy, therefore, to convert the degrees of one into the equivalent number of degrees of the other; but in ascertaining the corresponding points upon the different scales, it is necessary to take into consideration their different modes of graduation.

Thus, as the zero of Fahrenheit is 32 deg. below the zero at which that of the Centigrade and Reaumur is placed, this number must be taken into account in the calculation.

All the cases which can arise in relation to the three thermometers, will be included in the three following propositions:

1st. If any degree on the Centigrade scale, either above or below zero, be multiplied by 9 and divided by 5, or if any degree of Reaumur, above or below zero, be multiplied by 9 and divided by 4, the quotient will, in either case, be the number of degrees above or below 32 deg. or the freezing point of Fahrenheit.

2d. The number of degrees between any point of Fahrenheit's scale and 32 deg., if multiplied by 5 and divided by 9, will give the corresponding point on the Centigrade; if multiplied by 4 and divided by 9, will give the corresponding point on the scale of Reaumur.

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* Result that the electric gilding has given 15 years ago.

3d. Any degree of Centigrade multiplied by 4 and divided by 5, will give the corresponding degree of Reaumur; and conversely any degree of Reaumur multiplied by 5 and divided by 4, will give the corresponding degree of the Centigrade.

The following table will show the correspondence of these different thermometric scales:

FAH.	REAU.	CENT.	FAH.	REAU.	CENT.	FAH.	REAU.	CENT.
°	°	°	°	°	°	°	°	°
212*a*	80·00	100·00	148	51·55	64·44	84	23·11	28·88
211	79·55	99·44	147	51·11	63·88	83	22·66	28·33
210	79·11	98·88	146	50·66	63·33	82	22·22	27·77
209	78·66	98.33	145	50·22	62·77	81*g*	21·77	27·22
208	78·22	97·77	144	49·77	62·22	80	21·33	26·66
207	77·77	97·22	143	49·33	61·66	79	20·88	26·11
206	77·33	96·66	142*d*	48·88	61·11	78	20·44	25·55
205	76·88	96·11	141	48·44	60·55	77	20·00	25·00
204	76·44	95·55	140	48·00	60·00	76*h*	19·55	24·44
203	76·00	95·00	139	47·55	59·44	75	19·11	23·88
202	75·55	94·44	138	47·11	58·88	74	18·66	23·33
201	75·11	93·88	137	46·66	58·33	73	18·22	22·77
200	74·66	93·33	136	46·22	57·77	72	17·77	22·22
199	74·22	92·77	135	45·77	57·22	71	17·33	21·66
198	73·77	92 22	134	45·33	56·66	70	16·88	21·11
197	73·33	91·66	133	44·88	56·11	69	16·44	20·55
196	72·88	91·11	132	44·44	55·55	68	16·00	20·00
195	72·44	90·55	131	44·00	55·00	67	15·55	19·44
194	72·00	90·00	130	43·55	54·44	66	15·11	18·88
193	71·55	89·44	129	43·11	53·88	65	14·66	18·33
192	71·11	88·88	128	42·66	53·33	64	14·22	17·77
191	70·66	88·33	127	42·22	52·77	63	13·77	17·22
190	70·22	87·77	126	41·77	52·22	62	13·33	16·66
189	69·77	87·22	125	41·33	51·66	61	12·88	16·11
188	69·33	86·66	124	40·88	51·11	60	12·44	15·55
187	68·88	86·11	123	40·44	50·55	59	12·00	15·00
186	68·44	85·55	122	40·00	50·00	58	11·55	14·44
185	68·00	85·00	121	39·55	49·44	57	11·11	13·88
184	67·55	84·44	120	39·11	48·88	56	10·66	13·33
183	67·11	83·88	119	38·66	48·33	55	10·22	12·77
182	66·66	83·33	118	38·22	47·77	54	9·77	12·22
181	66.22	82·77	117	37·77	47·22	53	9·33	11·66
180	65·77	82·22	116	37·33	46·66	52	8·88	11·11
179	65·33	81 66	115	36·88	46·11	51	8·44	10·55
178	64·88	81·11	114	36·44	45·55	50	8·00	10·00
177	64·44	80·55	113	36·00	45·00	49	7·55	9·44
176	64·00	80·00	112	35·55	44·44	48	7·11	8·88
175	63·55	79·44	111	35·11	43·88	47	6·66	8·33
174*b*	63·11	78·88	110	34·66	43·33	46	6·22	7·77
173	62·66	78·33	109	34·22	42·77	45	5·77	7·22
172	62·22	77·77	108	33·77	42·22	44	5·33	6·66
171	61·77	77·22	107	33·33	41·60	43	4·88	6·11
170	61·33	76·66	106	32·88	41·11	42	4·44	5·55
169	60·88	76·11	105	32·44	40·55	41	4·00	5·00
168	60.44	75·55	104	32·00	40·00	40	3·55	4·44
167*c*	60·00	75·00	103	31·55	39·44	39	3·11	3·88
166	59·55	74·44	102	31·11	38·88	38	2·66	3·33
165	59·11	73·88	101	30·66	38·33	37	2·22	2·77
164	58·66	73·33	100*e*	30·22	37·77	36	1·77	2·22
163	58·22	72·77	99	29·77	37·22	35	1·33	1·66
162	57·77	72·22	98*f*	29·33	36·66	34	0·88	1·11
161	57·33	71 66	97	28·88	36·11	33	0·44	0·55
160	56·88	71·11	96	28·44	35·55	32*i*	0·00	0·00
159	56·44	70·55	95	28·00	35·00	31	0·44	0·55
158	56·00	70·00	94	27·55	34·44	30*k*	0·88	1·11
157	55·55	69·44	93	27·11	33·88	29	1·33	1·66
156	55·11	68·88	92	26·66	33·33	28*l*	1·77	2·22
155	54·66	68·33	91	26·22	32·77	27	2·22	2·77
154	54·22	67·77	90	25·77	32·22	26	2·66	3·33
153	53·77	67·22	89	25·33	31·66	25	3·11	3·88
152	53·33	66·66	88	24·88	31·11	24	3·55	4.44
151	52·88	66·11	87	24·44	30·55	23	4·00	5·00
150	52·44	65·55	86	24·00	30·00	22	4·44	5·55
149	52 00	65.00	85	23·55	29·44	21	4·88	6·11

FAH.	REAU.	CENT.	FAH.	REAU.	CENT.	FAH.	REAU.	CENT.
°	°	°	°	°	°	°	°	°
20*m*	5·33	6·66	1	14·66	18·33	22	24·00	30·00
19	5·77	7·22	2	15·11	18·88	23	24·44	30·55
18	6·22	7·77	3	15·55	19·44	24	24·88	31·11
17	6·66	8·33	4	16·00	20·00	25	25·33	31·66
16	7·11	8·88	5	16·44	20·55	26	25·77	32·22
15	7·55	9·44	6	16·88	21·11	27	26·22	32·77
14	8·00	10·00	7	17·33	21·66	28	26·66	33·33
13	8·44	10·55	8	17·77	22·22	29	27·11	33·88
12	8·88	11·11	9	18·22	22·77	30	27·55	34·44
11	9·33	11·66	10	18·66	23·33	31	28·00	35·00
10	9·77	12·22	11*o*	19·11	23·88	32	28·44	35·55
9	10·22	12·77	12	19·55	24·44	33	28·88	36·11
8	10·66	13·33	13	20·00	25·00	34	29·33	36·66
7*n*	11·11	13·88	14	20·44	25·55	35	29·77	37·22
6	11·55	14·44	15	20·88	26·11	36	30·22	37·77
5	12·00	15·00	16	21·33	26·66	37	30·66	38·33
4	12·44	15·55	17	21·77	27·22	38	31·11	38·88
3	12·88	16·11	18	22·22	27·77	39	31·55	39·44
2	13·33	16·66	19	22·66	28·33	40*p*	32·00	40·00
1	13·77	17·22	20	23·11	28·88			
0	14·22	17·77	21	23·55	29·44			

a Water boils; *b* alcohol boils; *c* very pure ether distils; *d* beeswax melts; *e* phosphorous melts; *f* ether boils; *g* nitric ether boils; *h* muriatic ether boils; *i* ice melts; *k* milk freezes; *l* vinegar freezes; *m* strong wine freezes; *n* one part alcohol and 3 parts water freezes; *o* 2 parts alcohol and 1 part water freezes; *p* melting point of quicksilver.

From the Jour. of the Phot. Soc.

NEW PRESERVATIVE PROCESS.

To the Editor of the Photographic Journal.

42 Milsom Street, Bath, Feb 17, 1857.

Dear Sir,—While making experiments in pursuit of a particular object, others are frequently discovered, and oft-times of greater value than the one sought for. Making some experiments some time since, I discovered a process for keeping plates sensitive for a lengthened period of time, without extra trouble or loss of sensitiveness, the great drawback to preserved plates; the process is of the simple kind and briefly described.

The plate is coated in the usual way, sensitized in the ordinary manner, and after removal from the nitrate bath, the plate is immersed in a prepared* plate-box filled with distilled water; an indefinite number of plates may thus be prepared, and when required for use, taken out and drained in the usual way as if fresh from the nitrate bath; expose as usual and the same time as a fresh plate.

To develope the picture, first pour on a solution of nitrate of silver, 15 grs. to 47, and develope in the usual manner.

I have kept plates for ten days in this manner, and have not found the slightest difference in the results, and believe they may be kept an indefinite period if required. I need scarcely remark that every precaution must be taken in cleaning the plates, keeking then from every ray of light, &c.

I may remark, that a simple and very excellent contrivance, described by Mr. Long in 'Photographic Notes,' No. 20, is admirably adapted to this process out of doors.

I shall be happy to give further information, if required, to any person. Truly yours, Horatio N. King.

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* A gutta-percha plate-box can easily be made, or any common wooden one can be made waterproof by being coated with a solution of gutta-percha, dissolved in benzole. I am having some plate-boxes made of gutta percha thus—(instead of the lid shutting in the ordinary way): the bottom part of the box to be made as usual, and round the top an additional part to be added, projecting out a little, and of sufficient height to allow the water to cover the plates in the box, whether one or more, the additional space at the side allowing for the plates to be taken out of the box in the same way that an ordinary box would allow when opened; the lid being made to close over this in the usual manner, and water-tight.

From the Cosmopoiltan Art Journal.

TRANSACTIONS OF THE COSMOPOLITAN ART ASSOCIATION,

FOR THE YEAR ENDING JAN. 28TH, 1857.

The third year's operations of the Association have drawn to a close, and we have to announce a brilliant success. Not only have we won that *material* support, so necessary for the prosperity of all enterprise, but have also won the public ear and heart; and the "Cosmopolitan," to-day, is written "our own" by tens of thousands, whose good will it is an honor to gain.

The Actuary, in his excellent report, tells what the past year has accomplished; and, by it, the reader may infer the position which the Association occupies in the hearts of the people. It remains for us to chronicle the "events of the evening" of the Third Annual Distribution, and a pleasant task it is: we can only hope, that for many years to come, the same agreeable responsibility may devolve upon us. It is not like the record of a "Last Will and Testament," where some good old uncle, crowned with the halo of a life well spent, parcels out his bounty to worthy recipients; but rather as the parent who loads his Christmas Tree with offerings, to make glad the heart through the year—thus we assume the office.

The evening of Wednesday, January 28th, 1857, was fair and propitious for the occasion of the Annual Distribution decreed by the Association. Norman Hall, in Sandusky, the place assigned for the interesting exercises, was gaily lit, and at an early hour presented a brilliant scene. The beauty, wit and grace were there, drawn from many cities of the west, while a goodly representation was preasent from our trans-Allegany subscribers; altogether composing one of the most intellectual and pleasing gatherings we ever have looked upon. All were on the tip-toe of expectancy, yet manifesting nothing but good humor.

The hour of eight o'clock having arrived, Hon. Eleutheros Cooke, President of Association, entered upon the rostrum, accompanied by the officers of the Association; by Ralph Waldo Emerson, the orator of the evening; by George C. Woolard, Esq., the reader of the Poem; by William Tilden, Esq., the reader of the Report of the Actuary. Their entrance was greeted by applause. The President calling the meeting to order, said the first thing in order was the appointment of a Supervising Committee, by the audience, who should take the drawing entirely into their own hand.

On motion of Hon. E. B. Sadler, W. F. Stone, Esq., and others, the following gentlemen were chosen said Committee, viz.:

H. JOHNSTON, of New-York City; HIRAM GRANGER, of Detroit, Mich., R. BRINKERHOFF, of Mansfield; C. H. BUCK, of Milan; L. A. HALL, of Tiffin; HORACE N. BILL, of Sandusky.

This Committee having withdrawn to count and arrange the ballots, Mr. Cooke proceeded to address the audience as follows: MEMBERS OF THE COSMOPOLITAN ASSOCIATION:

"This evening brings the arduous operations of the third year of our Association to a close; and, as the Representatives of more than Thirty thousand of our associates in this Institution, we are here to organize the appropriate Committee of Inspection, to supervise the drawing, and to guarantee to *all* a fair and impartial distribution of the prizes.

"At our last Anniversary, I took, occasion to refer, briefly, to the benign mission of our Institution, in kindling a love for letters and the fine arts, and in elevating, instructing and refining the minds and tastes of our people. To-night it becomes my pleasing duty to congratulate you on the brilliant success of that mission, to speak with unmixed pride of its signal triumphs over *every* difficulty, and to prophesy still more glorious results for the future.

"Notwithstanding the past year has been characterized with unusual commercial and financial embarrassment, and distracted by a most exciting political campaign, which for the time being, engrossed almost the exclusive attention of every section of the country, yet it gives me unfeigned pleasure to be able to announce that an increase of nearly 10,000 names has been added to the last year's list of our subscribers, thereby furnishing the means of providing a much larger and more splendid collection of works of art for distribution.

"This signal success will appear the more extraordinary when contrasted with the sickly progress and melancholy failure of other American Art Unions, upon whose ruins it has been founded. Sustained by gentlemen, distinguished for their high character, for their learning, talents and public spirit, those noble enterprises have done much to initiate and foster a love for art among our people, for which they are entitled to our lasting gratitude.

"The 'American Art Union' of New-York, modeled after the Art Union of London, sustained by the influence and wealth of our great Commercial Metropolis and conducted with the utmost skill and ability, at the expiration of its eighth year had only reached the number of 4,457 members, with an income of only $22,285. And although afterwards it gave promising indications of its ultimate success, it expired, to the universal regret of the country, at the close of the tenth year of its existence. A similar fate attended the Philadelphia Art Union, as well as that in our own State at Cincinnatti.

"The Art Union of London, founded more than twenty years ago, encouraged by the direct patronage of the Royal family and the Nobility of the Realm; supported, as it has been, by the wealth and pride of the great Commercial Metropolis of the world, and receiving subscriptions, not only from every part of the United Kingdom, but from its numerous colonies in all quarters of the world, and from the liberal and cultivated of almost every civilized portion of Europe, Asia and America, only reached, as appears from the Official Report of April last, at the close of its *twentieth year*, the number of thirteen thousand two hundred and ninety-six subscribers upon its list of Memberships—while our Institution, now *less than three years old*, enrolls a membership of nearly THREE TIMES THAT NUMBER!

"For this wonderful success, without a parallel in the history of similar institutions, we are doubtless chiefly indebted to the adoption of that new feature, by which Literature is made the basis of our system. It became evident that, much as the love of art was cherished by our people, that of sterling literature held the first place in their affections, and it was believed that the exclusion of the latter, from the plan of all previous Art Unions, was the rock upon which they had foundered. The system, therefore, by which literature was brought into a happy union and co-operation with the Arts—which returned to the subscriber an entire equivalent for his money, in the most popular standard periodicals of the day, and in addition, presented him, free of charge, with a ticket in the annual distribution of rare works of sculpture and painting, was at once adopted, and presented to the public.

"Such an appeal, so liberal in its terms, so noble and beneficient in its objects, so Cosmopolitan and National in its character, so elevating and benign in its influence, and so reasonable in its claims, could not, and did not, fail to meet with a cordial response from an intelligent and generous people, and the result is before us. It points to a future, bright with the promises of continued usefulness and permanent success.

"In this connection, I cannot refrain from expressing my high sense of the great obligations our institution is under to our worthy Actuary, and to the numerous Honorary Secretaries, to whose untiring labors, zeal and intelligence we are largely indebted for its unexampled prosperity.

"Gratifying and cheering as have been the results of our labors, their beneficial effects should, by no means, be measured by what they have already accomplished. Their influence upon our people and upon the future destinies of our country, is still more important, and offers still higher encouragement to our efforts and our hopes. Under that influence, the common mind of our people is becoming imbued with a love of literature and art, never before observed, and, if properly fostered, the results cannot fail to become more universally and gloriously apparent in the next generation; when, not merely a few wealthy individuals or occasional associations will be its patrons and recipients, but the gratification of a taste for refined art and elevated literature will become a necessity of the general body of the people; and when, if our institution is well administered, that necessity will be supplied as well to the poor as to the rich, throughout the length and breadth of the land, until every son and daughter of the Republic shall have participated in its benefits, and every cottage shall have been made the home of its treasures.

"But this desirable consummation can never be attained without the appropriate means. No great and signal good can be accomplished, but as the meed of corresponding exertion. What we want is, the general co-operation in this cause, of all who love our institutions; of all who desire progress in the cultivation and dissemination of Literature and Art. We claim the right therefore, to call upon every good citizen, to become, at once, a patron of this Enterprise. If it should be asked, "What can I, a single individual, do?" We answer, nothing, while you stand alone. Individual effort *alone* is inadequate to a task so difficult and momentous. Association is the only means by which, in this country, we can hope to advance a cause so glorious. To work the ponderous and complicated machinery of such an enterprise, the labor of many hands and heavy expenditures are necessary. Our institution is founded on this necessity. At the smallest possible charge to each of its members, it collects small contributions into large accumulations, and directs them to great and useful results. Let no one, therefore, excuse himself on the ground of his individual incapacity. The State, the nation is composed of individuals. Every human being has his sphere of influence. We are all so many consecutive links in the great social chain, which binds together the moral and intellectual elements of the world. The influence of each strikes through the whole extent of that chain. Each holds a relative position. Each individual is the centre of a circle. Yea, every circle is the centre of circles, and system of circles, embracing the entire population of the country; and every generous act of every individual sends an influence from the centre to the circumferance of this vast system of society. The influence, therefore, of every one who aids this institution in cultivating the good, the beautiful and true, by scattering among his countrymen the means of a high and lofty civilization, constantly, silently and untiringly, operates in ten thousand ways he knows not of, to the benefit not only of himself, but of the community in which he dwells, and of succeeding ages and generations.

"The appeal, therefore, addresses itself to *all*. It asks a belief in the position, that though man single-handed, can do little, yet he has the power to do much good when he allies himself to others; and that *union is full of strength and encouragement*. It recognizes for its basis, the great principles of reciprocal exertion, by which, alone, the highest enjoyments and graces of civil society can be sustained and perpetuated. It enjoins unity and concert of effort in the noble work of helping Art to ascend her ancient throne, there to act in conjunction with Literature, as the great teacher of beauty and truth to the people, and in the task of purifying and elevating the tastes and character of the nation.

"Reposing its hopes and reliance upon the all-powerful tribunal of an enlightened public opinion, it speaks *also* to the patriotism of the country. Cosmopolitan and anti-sectional in its character, it asserts its claim to the entire confidence and support of every friend, and of every section of the American Union.

"Discarding all sectional controversies; cultivating an enlarged and liberal patriotism, which looks with equal favor and affection upon every portion of the Republic, and extending its list of memberships, like an endless net-work of electric wires, to every city, and village and hamlet in the nation, our institution, if, as we fondly trust, it shall, in due time, reach the glorious consummation designed by its founders, is destined to flash its light over every hill and valley; to stud the whole land with gems of art; and, by a simultaneous and impartial dissemination of its favors, through successive years, to inspire that unity of interest—that community of intelligence—that co-partnership of enterprise—that sympathy of purpose—and that fraternity of hope, which cannot fail to consecrate and give perpetuity to the Union, and to render our country as truly eminent in art and knowledge, as she has already proved herself invincible in arms."

"Finally, Ladies and Gentlemen, if it be the happy fortune of our Association, through a long line of year, to dispense its light and multiply its blessing upon the country; and if it be the destiny of America to persevere in her present high career of improvement, and to administer for centuries to come, with wisdom, fidelity and success, her free institutions, and especially that of the Union, which is the great security of all the rest, filling it with an enlightened, industrious, moral and contented people,—one in name—one in interest—one in Government—one in patriotism—and one in power: thus realizing the prophetic vision of Berkley, to build up here an Empire, the last and no blest offspring of time; then, indeed, may the patriot of that no distant day exultingly point to the final triumph of our cherished Association, as one of the most prolific sources of all his country's accumulated greatness and glory."

This admirable address was listened to with great attention, and the expressions of delight which greeted it, showed how deep was the interest the public entertained for the success of the Institution. At the close of the address, the President announced George C. Woolard, Esq., who would read a poem, prepared for the occasion, by Metta Victoria Victor. Mr. W. read:

THE TWO PICTURES.

A Painter painted a picture for me,
  I know not whether with color or words,
Whether on canvas or air it might be—
  Whether I saw the vision or heard.
A picture it was, both wide and high,
  Nine-tenths of the world had a place therein:
The light was all in the rifted sky—
  Beneath, were the shadows of Want and Sin.

I saw—ah! what did I not see there
  That would sadden the soul to feel and know?
All bodily anguish and heart despair—
  And, far the worst, was the Spirit's woe:—
The baby who pined for milk and bread—
  The mother who watched it with tearless eyes—
The father who plotted first crimes in his head—
  The sister who fell when she thought to rise:

The laborer eating his mouldy crust
  In many a strange and dreary place,
Now by the road-side, crouched in the dust,
  Now in the mine, with a hueless face:
The widow dead at her daily work,
  With none to see but a wailing child—
Beggars that in odd corners lurk—
  And slender maidens with faces wild:

Young men, whose dreams of greatness burst
  Their garret walls with their narrow scope,
Who drowned their hunger and cold and thirst
  In the brimming wine of a thrilling hope—
All had a place in this picture strange:—
  I shuddered, yet could not choose but look,
While ever and ever the picture changed
  Like turning the leaves of a solemn book.

Vast shadows over the landscape crept,
  Blending the country and town in one;
Shapeless dread in the darkness slept—
  Even the sky was dull and dun,
Save that a pencil of silver light
  Slid through the heavy and choking air,
Suddenly touching with beauty bright
  Some pale face lifted in patient prayer,

The darkness drifted like wind and rain—
  I seemed to listen as well as look,
While gusts went by that were loud with pain,
  And the air with sobs of sorrow shook
To a strange, continuous undertone
  Of tears that were falling many and fast:—
Ah, the wind that over the sea doth moan
  Had never so wild sound as this last!

Ever through space the picture grew,
  Bearing me on with its thronging train;—
This tempest of Human Sorrow blew
  And beat on the world its drenching rain.
"What painter hath done this work?" I cried—
  "Hath painted this picture wild and dim?"
"Selfishness wrought it!" a voice replied,
  "For a prize of Gold that was offered him."

I said:—"Oh let the vision pass!"
The scene, like mist, was drifted away:
A light wind ran through the rippling grass,
A golden glow on the world did lay;
The dimpled foot of the happy child
On moss and velvet violets trod;
With the joy of flowers the fields were wild,
And perfumes rose from the grateful sod.

The mother's breast was full and fair,
She laughed as she nursed her rosy boy
And shook the curls of her careless hair
To vex him with a gay annoy;
The girl her simple labor sped,
Mocking with songs the birds and streams,—
Then rested 'neath the rose-vine red,
Her cheeks flushed crimson with her dreams;

The laborer feasted at his ease
On the rich fruits his toil had won;—
The peach and purple grape were his—
The wheat gold tinted by the sun;
The young man with a step elate,
Walked proudly on th' admiring Earth,
His ideas grown to actions great—
Success commensurate with his worth:

The splendor of the boundless sky
Was of so soft and fine a hue,
No daintiest critic-taste could cry
"There was to much of gold or blue?"
"Who painted *this*," I said, "must be,
Of Art, the master and the lord:"
"Love wrought it!" some one answered me,
"And Beauty was his sole reward."

"But when shall Love, the artist, stand
Most honored in the world's esteem,
And these sweet visions from his hand
Be more than a delightful dream?"
I asked and still the voice replies—
"When Beauty is of higher worth
Than Gold in men's far-seeing eyes;
Then Love shall paint for all the Earth."

This truly exquisite poem was rendered by Mr. Woolard in a pleasing and very effective manner, and produced a sensation gratifying alike to the poet and reader.

Ralph Waldo Emerson was then introduced, and proceeded to pronounce the Annual Address. His theme was "Beauty," and a beautiful discourse it was,—full of fine illustration, exquisite perception, humanitarian philosophy and cosmopolitan moral, as might have been expected from a speaker with a mind so richly stored. His delivery was quiet, unimpassive, yet very distinct; and the *thoughts* themselves seemed to drop from his mouth as drops from the over-full vase. We greatly regret that we cannot reproduce the entire dissertation; its length—its half impromptu character and *unreportable* "points," forbid. The following synopsis, giving merely the heads of his discourse, will show the train of the speakers thought:

Mr. E., in his introductory remarks, described what he called the inhumanity of science, as shown in the arid and repulsive aspect it wears. He esteemed this repulsiveness so much condemnation of what is called science. Beauty is the pilot God gave us, and all sound and desirable objects are thus marked. The only real object of interest is man; and when we explore rocks, or acids, or stars, they are interesting only as they are related to man. But the knowledge of men, the power of form, the science of manners are always interesting. The whole structure of man is expressive, and everybody is forced to tell its history. Extraordinary power of features, and especially of the eyes, to reveal secrets, was variously illustrated. Mr. E. proceeded to arrange facts of this class under the doctrine of *Beauty*, which is a key to them all. Beauty is the pilot of the soul; and throughout nature Beauty indicates superiority of structure, and is not used for mere ornamentation. Several examples were adduced, of the grace that cleaves to necessary works.

Beauty was next considered in transition. 'Tis always a mediate or flowing state, as seen in fashions or modes, in art, or in nature. Beauty, in the next place, rests on necessities; it is the line of economy in nature, and art only imitates nature when it saves material by more skilful arrangement.

Once more. Nothing is beautiful but what is true; and the teaching of Kessler, Ruskin, Greenough, and other writers, all agreed in their emphasis on this point. All the Arts spring out of deep instincts in races and men.

Another point. Beauty is the most enduring quality. All pleasing forms are copied and repeated, and so preserved; whilst ugly buildings, or utensils, or figures, are suffered to perish without copy. The Greeks are our masters in the science of Beauty, and their genius was described, and examples of their delicate Art adduced. But better than houses and statues is the human form. The speaker cited examples of its perfection, both in antiquity and in our own times.

Effects of Beauty—Beauty is the normal state, though so rare; and we seem entitled to beauty in our own persons as much as the inferior animals or the plants, but that our ancesters have broken the laws. A higher beauty than that of face or form is beauty of expression.

Examples of the Power of great qualities to beautify ugly persons.—Mr. E. proceeded to say, that the subject naturally led him to treat of the beauty of manners, which in our daily experience, move and facinate and control society; and beyond this, to rise to the high aspects of beauty in the intellect and in the soul. But these were topics which though necessary to the completeness of any sketch, should not be hastily touched, and could only now be indicated.

The necessities of the present interesting occasion, and the time required for other performances of the evening, imperatively compelled him to contract his remarks. He closed by inferring the unity of design and genius which lead us from the first agreeable forms and colors which strike the eye of childhood, up through the beauties of nature in general and in detail; through the beauty of manners, up to the mysteries of the mind and soul; until at last we are lost in the the perfections of the first and final cause."

Mr. E. expressed himself as highly gratified at the interesting occasion. The address was warmly applauded.

The hour having arrived for the drawing to commence, the reading of the Actuary's Report was dispensed with; but we here subjoin it as a necessary and highly interesting part of the proceedings, not only for its history of the past, but also for its promise for the future; to which latter feature of it we call the reader's especial attention. The Report is as follows:

"The third year's operations of the Cosmopolitan Art Association close with this evening's exercises. It has been a year of success, gratifying for the present, and encouraging for the future. Probably no Art Institution ever founded has attained to such succeess in so short a period.

"The number of subscribers which, at the last Annual Distribution, reached twenty-four thousand four hundred and forty-eight, this evening amounts to thirty-three thousand and twenty-seven, showing a ratio of increase of membership unprecedented in Art Institutions in this country. These subscriptions have come from all sections of the Union and the Canadas. Much of this success is owing to the efforts of our Honorary Secretaries, located in almost every city, town and village in the country.

"Nearly three thousand of these efficient agents have been qualified, and have zealously co-operated with us in extending the benefits of the Association to all classes. With such an army of coadjutors do we close the year's operations and commence the new campaign!

"While we refer to the past with pleasure, we may look forward to coming years with the proud hope of rendering the "Cosmopolitan" one of the grandest instruments for disseminating Art taste among our people, which it has been the good fortune of this country to foster. Obstacles there are, and great ones, placed in the way—the *material* propensity of the people and their unsettled character—the invidiousness of a *few*, who prefer that the masses should not have the *beautiful* things of life placed within their reach—the "suspicions" that another very worthy class entertain for Art Unions and Distributions—the enormous expense attendant upon its operations—all conspire to throw serious obstructions before us; but it is sanguinely hoped that untiring vigilance, strict economy, and the encouragements of of the discerning and sympathising public, will suffice to pave the way to a truly *Cosmopolitan* success.

"The year just past has been one of unusual trial and responsibility. The new features which the Association adopted, added immensely to its expenses, as well as to the cares and labors required of the Actuary; but it is believed there has been no flagging, no want of confidence; and the above result proclaimed, shows with what success we have conducted the enterprise committed to our keeping. It may be forgiven us, perhaps, if we indulge in some self, gratulations upon this auspicious termination of the year's responsibilities.

"It was evident that, to place our Association properly before the public, a journal of *our own* was required. But it was not plain how such a publication *could be afforded* in view of the magazines, &c., already pledged to the subscriber. By close economy in newspaper advertising, by unexpected facilities offered for publication, by a comparatively trifling, cost for editorial labor, it was found feasible to make the attempt, and the "Cosmopolitan Art Journal" was brought into being, and published as a *gratuity* to subscribers, thus virtually giving four dollars, worth of reading for every three dollars contributed to the Association's resources. We have to announce the most unexpected success attendant upon the experiment. Everywhere the "Journal" was received with gratifying remark; and its efforts to bring this Institution properly before the people have proved the complete efficacy of the means; while, at the same time, it furnished to the reader a complete chronicle of current Art-news, dissertation, criticism, and other papers of interest and value.

"Emboldened by such a result of the experiment, the Association has determined to add new features to the "Journal," to enhance its value greatly by costly and beautiful engravings, and by added editorial care—thus to render it a perfect Art-Exponent, while it will prove of such artistic and literary worth as to make it desirable to all who have an interest in the Art and Literature of this country.

"Many subscribers for the third year expressed a desire that their choice should not be limited to the current Magazines, but that a fine engraving, fully worth the subscription, might be added to the list from which the subscriber could select. Acting upon the suggestion, the Association looked around for such an engraving as should answer the purpose, perfectly; and, after much effort, and a large outlay, succeeded in becoming possessed of Lemon's celebrated line and stipple plate of "Saturday Night," from Faed's exquisite Painting, the "Cotter's Saturday Night." This truly splendid Engraving was to have been published in England for $6, but was purchased upon such advantageous terms by the Association, that we were enabled to furnish it on the same scale as the Magazines, viz. *three dollars.* The purchase proved a fortunate one, as will be found by reference to the books of the Association, where it will be found that a great portion of the subscribers have chosen it in preference to the Magazines.

"In view of this decided expression of taste on the part of subscribers, the Association has decided upon *another elegant engraving* for the coming year, to be furnished with the "Art-Journal," for *three dollars.* This new work of Art will be unique in its character, and unquestionably worth its price; so that, added to the usual features of the Magazines, the promise to subscribers, for the coming year, is one which should stimulate all friends of the enterprise to renewed confidence and co-operation in the work.

"The collection of Marbles, Bronzes, Paintings, Medallions and Casts, for the year, was made with care, and at great expense, as every subscriber who has visited the galleries will readily infer. The works embraced many real masterpieces—such as only the rich are able to purchase; but which, through the admirable operation of this institution, are, this evening, to find their way into homes in every portion of our country. Amid so many commissions, it would be strange if some works of inferior merit should not find their way; but it is believed, that no collection of Art-works in this country, of equal numbers, contained more admirable, and less unworthy contributions to the Art of America. We therefore view its distribution, to-night, with pride, and look forward with pleasure to the introduction of these messengers of the beautiful to homes all over the land.

"As the collection for this year has surpassed that of the preceding year, so will the purchases of the coming year exceed in value and worth these we dispense to-night. Agents are already abroad making selection of what is choice; while commissions are being prepared for home artists, which will fill the galleries with a most unique and admirable gathering of Art productions. In this Department, it is necessary to exercise extreme care and the strictest economy, and yet to be liberal and encouraging. As one great purpose of the Association is to bring artists and people together, the management is necessarily an agent in the matter, and hence must, in trying to do justice to all, accept many overtures and commissions which a strict and impartial judgment might discard. But, thus far in our progress, we have succeeded in the purchase of good pictures, at fair prices, and have had to accept but few that were inferior; and we may safely promise that, as we gain strength, age and influence, our annual offerings shall become more and more creditable to the Association, to the people, and to American Art.

"With these pledges we close the year, and ask from the great American Public a continuance of the sympathy and support so generously bestowed in the Past.

"The Financial Reports, giving the total receipts and disbursements for the year, could not be prepared in season for this evening's exercises; but will be given in detail in the next number of the Art-Journal, to be issued in a few days."

Before the Committee of Supervision reported, the following resolution was introduced and adopted by a hearty and unanimous assent:

Resolved, "That the best thanks of the Association be tendered to our worthy Actuary, C. L. Derby, Esq., for his invaluable services during the past year, and to our numerous Honorary Secretaries, for their zealous and unremitting exertions in promoting the best interests of the Association."

The Supervising Committee having completed their examination of the ballots, then reported as follows:

"We, the subscribers, appointed to inspect the ballots containing the numbers representing the shares held by the members of the Cosmopolitan Art Association, for the year ending January 28th, 1857, hereby certify that we have performed that duty, and find that the numbers on the ballots herewith submitted, contain the numbers from *one to thirty-three thousand and twenty-seven, inclusive*, and *only those*, being the whole number of shares of all the members on the subscription books for the said year.

"Dated at Norman Hall, in the city of Sandusky, this 28th day of January, 1857, at 9 o'clock, P.M.

H. Johnson, New York.
Hiram Granger, Detroit, Michigan.
R. Brinkerhoff, Mansfield, Ohio.
C. H. Buck, Milan, Ohio.
L. A. Hall, Tiffin, Ohio.
Horace N. Bill, Sandusky, Ohio."

Then immediately followed the *highly exciting* part of the proceedings of the evening, viz., the award of the Marbles, Bronzes, Paintings and Casts belonging to the Galleries. All persons present being subscribers, had, of course, a very personal interest in the matter. The drawing was conducted under the direct superintendence of the Committee. The ballots, containing the numbers of the certificates, were placed in one large wheel; those containing the names of the prizes to be distributed, were placed in a second and smaller cylinder. Four young ladies, beautifully dressed in white, were then introduced. Miss Emma Cooke, relieved by Miss Fannie Barney, assisted by Master Henry Huntington, officiated at the first-named wheel—A. R. Belden, Esq., announcing aloud the numbers as drawn singly from the wheel. At the second wheel, Miss Mary Hutchins, relieved by Miss Nettie Wetherell, and assisted by Master Henry D. Mills, officiated—F. W. Coggswell, Esq., announcing the prize drawn, to correspond with the number drawn from the larger wheel. Each ballot, and its prize as drawn was entered by the Recording Secretaries, under the supervision of the Committee, who verified the ballots as they were called off.

In this order the distribution proceeded uninterruptedly to the close—nothing transpiring to hinder or to give cause of complaint on the part of any subscriber. As the various prizes were announced—"Spring"—"Wood-Nymph"—"Day-Dreamer"—"Apollo"—"Webster"—"Clay"—"Struggle for the Heart"—"Venus"—"Kiss Me if You Dare"—"Venus and her Cupids," &c., &c.—the audience gave expressions of delight, albeit none in that vast assembly might be "the happy fortunate." By midnight, the small cylinder was exhausted—the prizes all drawn, and the Third Annual Distribution declared closed, the audience dispersing in the utmost good feeling, gratified at the results of the year, and bidding the Cosmopolitan "God speed!" for time to come.

For the Photographic and Fine Art Journal.

PHOTOGRAPHY IN CALIFORNIA.

H. H. Snelling, Esq.—*Dear Sir :*—Having resided in the Golden State for the past year—and been a close observer of the progress of Photography in that region—I have noted down the present style and condition of the rooms for your consideration. Perhaps they may be found interesting to your numerous readers.

In San Francisco, the Art is of course more generally practiced than in any other city or town of the State.

Mr. R. H. Vance, corner of Montgomery and Sacramento streets, has long been established there, and has now one of the most extensive galleries in the United States. His Photographs are not in the best style of the Art, as he has devoted more special attention to the Daguerreotype and Ambrotype process. He holds the so-claimed patent for taking that style of photography fromMr. Cutting of Boston. In consequence of this exclusiveness claimed by Mr. Vance, there has been a violent opposition, and many threats of prosecution on his part against his brother Artists for alleged infringements. The recent decision in the New York courts had in the case of Tomlinson agst. Battelle, will serve to quiet the fears of the fraternity in San Francisco. Ambrotypes will there as here, have their full share of public patronage, and attain that perfection which they have in New York and elsewhere.

Mr. Vance's Gallery is comprised in a suit of fourteen rooms, which are elegantly and tastefully fitted up with considerable expense. Having been long established, his patronage is at least as much as any other Gallery, if indeed it may not excel all others.

The next Gallery in importance, is the one recently occupied by Mr. J. M. Ford, corner of Clay and Kearney streets, but now just opened by Mr. S. P. Howes. Mr. Ford has heretofore taken the best Photographs in San Francisco, and his successor will no doubt produce equal specimens of the Art, having been for a long time a successful operator for Mr. Vance. The rooms are just now being refitted under the immediate supervision of Mr. Howes, who will no doubt keep up the well deserved credit of the rooms.

Mr. C. F. Hamilton, whose rooms are located at 163 Clay street, being fitted up with much taste, though small, contains many beautiful specimens of Daguerreotypes and Ambrotypes. He has not yet practised the Photographic process, but intends to enlarge his rooms or to locate at some other place in the city, and devote his entire attention to Ambrotypes and Photographs, when he will no doubt, with the resources at his command, excel most of the other galleries in San Francisco.

Mr. H. W. Bradley, corner of Clay and Kearney streets, has a small Gallery in the second story; he has heretofore sustained a valuable reputation in the Art, and should strive to be at the head of his profession; but he has allowed others with lesser means to outstrip him in the race for excellence. Yet his rooms contains many beautiful specimens of Daguerreotypes and Ambrotypes. The latter, however, have been made by an operator recently arrived from New York.

The Photographs in this Gallery are few, yet those which are exhibited possess much merit. Mr. Bradley should look well to his interest, and not allow others to outshine him in all the various departments of the Art.

Mr. C. R. Fardon, 203 Clay street, is engaged almost entirely in taking Photographic views—although a few Daguerreotypes adorn his walls, yet they are not good.

His views, however, of the various localities of interest in San Francisco, are beautiful specimens of the Art, and he has just published an Album, containing a complete series which are well worthy of note and commendation, and will no doubt be sought after in the Eastern cities.

The Messrs. Johnson Brothers, 185 Clay street, have some fine specimens of Daguerreotypes, which were taken in Washington City of the distinguished men in Congress. Of course those cannot be considered specimens of the Art in California. Those taken in San Francisco were evidently taken by other artists, who have had little or no experience. Their Ambrotypes are very inferior in quality, and are no doubt made by unskilful hands, and they are free to admit that such Ambrotypes are not wanted by their customers.

Mr. Shew, whose Gallery is at No. 113 Montgomery street, has a small establishment, yet as far as it extends, is fitted up with much taste. He is contented with taking pictures at a low price, and rather may be classed amongst those operators in New York who seek to bring this beautiful Art, down to their own level, by reducing the price lower than is warranted by a due regard to propriety.

There is an opposition room so called, being kept by a brother of Mr. Vance, corner of Clay and Montgomery streets. It is in an upper story filled with nothing but new Daguerreotypes; has tried his hand at Ambrotypes, and signally failed, and now is engaged in Daguerreotypes only.

Mr. Deconclois, successor to Mr. Johnston, on Clay street, has some fine specimens of Photographs brought from Whipple and Black of Boston, but his Daguerreotypes and Ambrotypes are very inferior in quality, and such Photographs as were made in San Francisco which are few in number, fall far behind the average of the specimens in other Galleries.

Messrs. May & Fessenden on Kearney street corner of Sacramento street, have a few Ambrotypes and Daguerreotypes, but they are far from being excellent. Nor do they seem to improve in the Ambrotype process. Yet their Photographs are the best in regard to quality, though they are far behind their fellow laborers in the city.

Mr. H. Bush, on Washington street, has about five or six frames of Daguerreotypes which were once good specimens of the Art. He has attempted Ambrotypes but failed entirely, and was obliged to abandon the process.

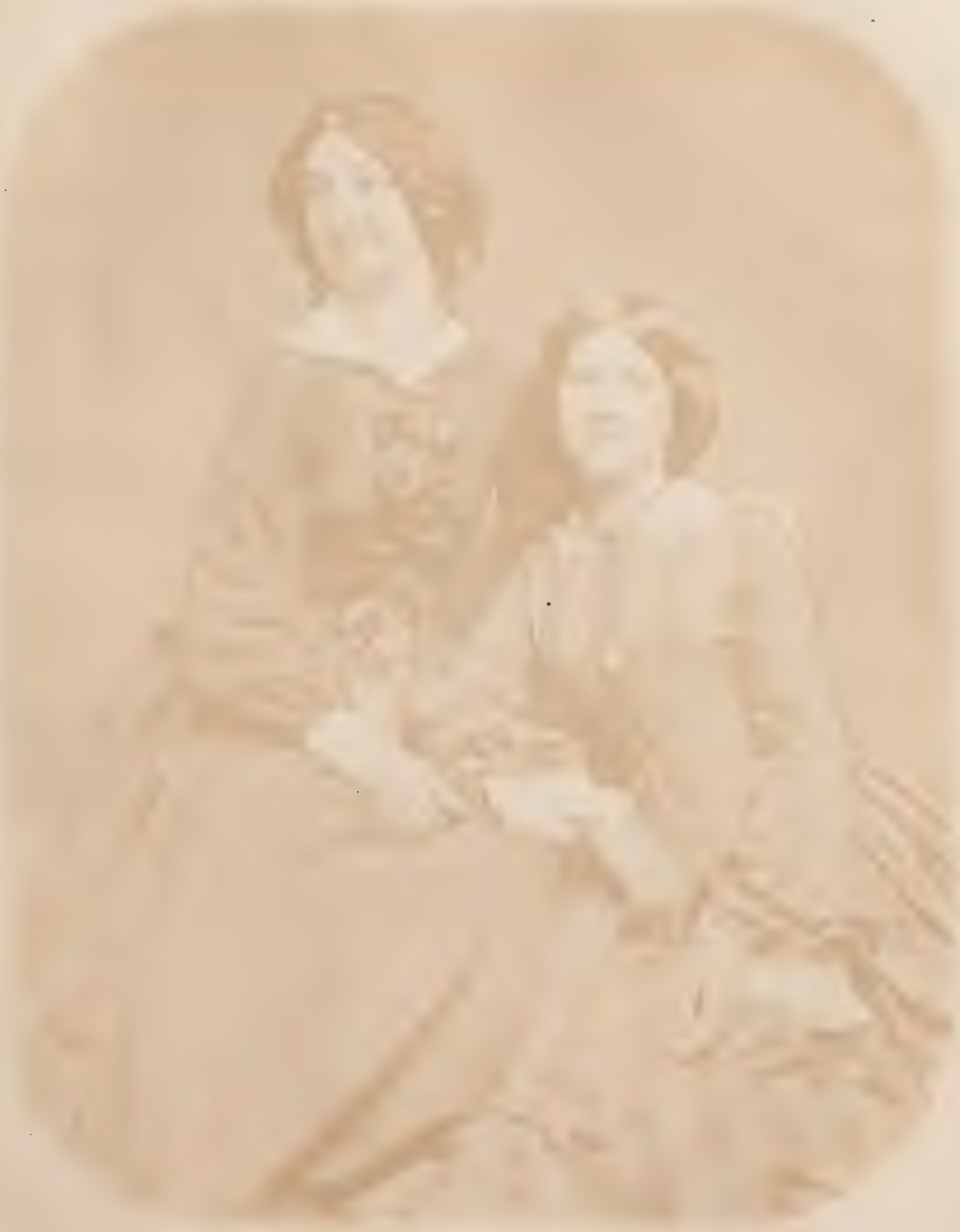
The Photographic Art in Sacramento city, is not in so flourishing a condition as in San Francisco, as most persons who patronize the Art, are those who have friends in the Eastern States, and likenesses are wanted to transmit to these friends. They are generally forwarded by steamers, and it is quite a novelty in all the Photographic Galleries on the day previous to the departure of a steamer, to witness the strife and anxiety to procure these portraits for transhipment to the East. Indeed all the Photographers consider the day following the departure of a steamer, as a general holiday and a day of rest and tranquility.

The energies of the operators are fully taxed, to produce as many as may be wanted on these certain days before the noted event.

The Artists themselves can count with absolute certainty of a visible accession to their business on these days, and they accordingly arrange their rooms for the event. It is therefore not the least interesting portion of the life of Photographic artists in the Golden State these epochs.

The Art in California bids fair to rival the cities of the Eastern States, and it may be said with credit, that there are many who honor the profession in this once far off land.

There are some advantages possessed in that portion of the



MRS. BARRY AND MISS TAYLOR,

Of the Boston Theatre.

Negative by Messrs. Whipple & Black.

world at a certain season of the year, viz. the dry season, when a constant succession of clear weather for more than six months, can be depended upon. The peculiar clear and cloudless sky is certainly more advantageous to the practice of the Art than our uncertain weather—now rain and then sunshine. With these advantages it is not strange that there are many specimens well worthy of note, and some indeed are equal to any produced in the large cities of the Atlantic States.

The writer in his travels stopped for a few hours in Panama, when he called at the rooms of two Americans who were pursuing the Photographic Art under difficulties.

Messrs. Valentine & Case were located in a very obscure portion of Panama, and were taking some of the most inferior styles of Ambrotypes ever seen

They no doubt experienced many difficulties from the climate and water; yet their specimens possessed such a faded look, that it seemed they were about to vanish from the plate entirely. Strange enough though they were selling those miserable impressions and at good prices. There did not appear to be any competition on the Isthmus.

A good operator there would no doubt succeed, if he could withstand the changes of climate, &c., which is prevalent in that portion of the world.

These few observations are written for the special notice of your readers, and I hope no one will feel aggrieved at any remarks which have been passed on any of the rooms, for they are made in all candor and truthfulness, and written from actual observation on the very localities named herein.

Yours, most respectfully,

R. A. C.

From the Genie Industriel, June 1854.

METHOD OF COLORING PHOTOGRAPHIC PICTURES.

BY M. MINOTTO.

[As considerable speculation has been created as to the validity of the Hallotype patent, and as this speculation has been the effect of alleged similarity between it and the "Minotto Process," we re-publish the latter from our October number for 1854. By turning to the "Hallotype Specifications" in our March (1857) number and comparing the two, our readers will readily perceive the points which constitute the difference—for they are marked. The "*third method*" is the only one that even approaches Mr. Hall's process, and to this we can only apply the same remarks we have already made in the March number. Mr. Hall's improvement on Minotto's principle was never dreamed of by Minotto, and, as far as we know, or published accounts go, by no one else except Mr. Hall. Minotto's process—or rather methods 1 and 2—was adopted by Mr. Hill, and many an operator who "knew too much to take the Journals," paid him roundly for the receipt.—Ed.]

The want of color is chiefly felt in portraits; this deficiency imparts a cold and almost cadaverous air; it renders the likeness less perfect, and often gives an appearance of greater age.

Attempts are made to get rid of this inconvenience by subsequently coloring the photographic image by hand; but it often happens, under this operation, that in striving to correct the work of light, the effect is spoiled and the resemblance destroyed; on the other hand, bad photographic pictures are frequently made to pass, by correction with colors, so that the resulting product remains no longer a photographic portrait, but a portrait sketched by light and finished by the painter.

The object to be sought, therefore, was to preserve all the delicacy of detail, shadows and half-shadows of photographic pictures, while adding the colors which they require.

That which could not be accomplished by applying color *upon* the photographic image, has been effected by M. Minotto by the contrary process; that is to say, by applying the color *behind* the image.

This system of coloring, practised in Germany since the year 1824, and even patented in that country in 1826, was applied to engravings and lithographs, under the names of *oleocaleography* and lithochromy. It is this neglected method which the author has just applied to photography, and this entirely new application is what constitutes his invention.

This method is only applicable to photographs upon glass, paper, linen, or substances either already transparent or capable of being made so. The following are the modes of operation for paper; the modifications for application to other substances are very slight and readily comprehensible.

First method.—The paper bearing the image to be colored is to be held up against the light, so that the operator may trace upon the back, with a crayon or pencil, the outlines of the different tints; that is, in the case of a portrait, the outlines of the hair, the flesh, the dress, the whites of the eyes, &c.; then the proper colors are applied upon the different parts, upon the back of the paper. It is scarcely necessary to say that these colors may be of any kind, either water-color, oil, or made up with varnish, &c.

The colors are allowed to dry and the paper covered with a varnish which renders it very transparent; the image then appears colored, and if the operation is well performed, it acquires the aspect of a miniature, and even of an oil-painting.

Second method.—The operations may be commenced with varnishing the paper, allowing it to dry, and then coloring on the back. The advantage of this mode of proceeding is, that the sketching out with the crayon may be dispensed with; moreover, as the effects of the colors are seen at once, they may be corrected at will. It is evident that in this process colors must be used that will take upon the varnish; if the paper is thin, the outlines may be seen and colored by transparency, and then immediately varnished.

Third Method.—The outlines of the portrait may be drawn or traced upon a separate paper or board, and the colors be applied upon this sketch; this is applied to the back of the paper bearing the image; the outlines being made to coincide, and the two papers pressed together, the colors will appear through.

This process possesses the following advantages over the other two:—

1. We preserve intact and uncolored (though varnished) the image which was actually produced by light.

2. The colors may be easily corrected by painting over the original tints. In the first two processes the original layer of color always appears, and must be removed if requisite to change it.

3. We may give the same images several different aspects by executing several colored duplicates, thus changing the tint of the dress, or even, if we wish, for a whim, the color of the hair, eyes, flesh, &c. We may, moreover, use the same colored paper for various photographic proofs taken from the same negative.

4. We may cut out the paper bearing the colors, and apply it upon several backgrounds, so as to see which suits best. We may even have grained backgrounds, by dusting the background with gold, silver, or color powder before the varnish is dry.

Although the execution of the work is in itself very simple, we think it necessary to enter into some details on this head here.

For positive proofs to be colored in this manner, it is requisite to select paper of very equal texture, and to reject any which presents a cottony or unequal aspect when held up to the light. It is well to try some of the paper by varnishing pieces of it.

The paper should be thin, up to a certain point, so that the outlines may not be concealed. Nevertheless too thin a paper would lead to serious inconveniences. The shadows would not be strong enough, the least irregularity in the colors would be visible, the transition from one color to another would be too obvious, and we should not obtain that softness of tint, resulting from their fusion, produced by the veil of paper, one of the merits of this invention; an important merit, above all, in regard to the flesh.

If, on the other hand, the paper were too thick, we should run a greater risk of inequality of texture, and the colors would not come out strongly enough. The author considers good strong writing-paper the best.

The photographic image must be well marked, and of a tone apppropriate to the colors which are to be applied to it. It is very important that the whites should be clear, and the back of the paper free from spots.

The colors must always be vivid, for their force is diminished by the veil produced by the photographed paper, and they must be more intense in proportion as the paper is thicker and less transparent. On the contrary, they must be of less force in proportion as the shadows are lighter. Sometimes weakness of the shadows may be overcome by placing two positive proofs instead of one over the color.

The tints must obviously be regulated by the nature of the object. In portraits, it is of importance to preserve the exact colors of the hair, of the cheeks, and sometimes even of the lips and eyes.

It is well to lay on flat tints as regularly as possible however, as the superposition of the paper blends them very well; inexperience leads to no great inconvenience, provided the paper is of sufficient thickness. It is most important not to overrun the outlines.

The varnish must be colorless, and such that the paper, once dry, preserves its transparency, and does not become yellow. It is well known that several kinds of varnish exist which fulfil these conditions. Mastic varnish is very good. That which was used in *oleocaleography* may also be employed; it consists of

Spirits of turpentine................	7 parts.
Mastic, of the finest quality...........	1 part.
Venice turpentine....................	3 parts.
Powdered white glass...............	10 parts.

Wax may also be employed, or oil, in particular oil of *ben*, and other substances having the power of giving a durable transparency to paper.

[The varnish sometimes used in making tracing paper would probably succeed well. It consists of Canada balsam dissolved in spirits of turpentine.—Ed]

PROCESSES OF TRANSFERRING A PAINTING

From an Old Canvas to a New One; of Bleaching Old Prints and Removing Blisters.*

BY ANGE MERCIECA ROSSI, ESQ.

The first process, if I do not err, has not yet been published in any English book. Those who repair paintings have kept it, of course, as a secret, transmitted among them traditionally. It seems strange that this process is not generally known. I found a French work, in twenty volumes, called "Curiosités et Secrets des Arts, 1622," which describes it, in a public library, not in this place.†

Naturally, the thousands of secrets it gives are mingled with astrology and necromancy: still, the processes of transfering old paintings, and removing blisters without cracking, and bleaching old prints, will be worth, I should think, the attention of the amateurs of paintings and prints. Every good thing is counterfeited, so a false process followed the true one.

The false having always the preseance of the true, I shall begin with the counterfeit process.

For instance, I wish to operate on a painting: I take it from its wooden frame, on which it is secured; then have a sheet of strong paper—larger than the painting—covered with cold paste; next I place the face of the painting so it may adhere to the pasted paper, which is already on a table. A plane of wood is necessary to secure a complete adhesion of the painting and the pasted paper.

When dry, take away the wooden plane, and with a large, sharp blade, cut the canvas about one inch and a half from the edges of the painting, so as to have a cut surface inclining from the canvas to the edges of the painting, (if I may say so). Then I cover the old canvas with a coat of glue, rather cold, taking care of the edges of the painting. I put on it the new canvas, and last the wooden plane—as the lower surface of it cannot adhere to the edges of the canvas on account of the cutting—I place four splits of wood between the wooden plane and the new canvas: let it dry. The part of the new frame which will adhere to the canvas ought to be carefully cut, and leaving no space between the canvas and itself. Then I secure the canvas on the frame, and with a sponge and water I take off the pasted paper. By these means you have an old painting transferred on a new canvas, which, if skilfully done, is very seldom detected, unless you cut off about two inches of one edge of the canvas.

I shall consider, now, the true process, and be more explicit, if I can. I have modified, somewhat, the former process without changing it materially.

Having a painting to transfer, I take it from its frame, and have ready a sheet of strong paper, covered with cold paste, (I say cold paste, because if warm it will affect the colors of the painting.) The sheet of paper is to prevent the painting from cracking and losing pieces, while taking away the old canvas.

I place the face of the painting on the pasted paper, which is already on a table. A large wooden plane is then put on the old canvas; thus the adhesion between the painting and pasted paper will be complete.

According to the size of the painting, a weight may be added, to make the wooden plane heavier. When dry, I remove the plane of wood. Then with a sponge and water, slightly warm, I moisten the whole surface of the canvas. Peculiar care ought to be taken of the edges, on which the operator begins. A blade, small and not sharp, rather flexible, is insinuated gently between the painting and the old canvas, going from the right to the left, or *vice versa ad libitum*, so as to detach one half or one quarter of an inch of the canvas from the whole length of the painting. I need not recommend attention and skill. It is necessary to have a copper or iron cylinder, one inch in diameter, with points, placed in the same line, and at an equal distance from each other, to fold the canvas, and leave the space for working free. Time and patience will enable you to finish the operation. The blade ought not, in any event, to rest on the painting,—which may be considered as a mastic—but slightly touching the canvas. Sometimes the irregular adhesion of the painting to the old canvas will cause your blade to go farther than you intend, and thus cut the mastic; but this will be prevented by the regular folding of the canvas, and some light testing with the blade, to assure you that there is not empty spaces.

The canvas being removed, pass a soft, dry sponge over the painting, thus taking away the moisture which remains at the end of the operation. This is very important, because if some globules of water are left, the change of temperature gives rise to blisters.

Now, give to the painting a coat of gum-lake dissolved by alcohol or naptha.‡ This gum-lake must not be too warm, because it would spoil the painting, and it must not be too cool, because a perfect adhesion is necessary.

The gum-lake spread, I take the new canvas, which is rolled on the cylinder—the cylinder must be longer than the canvas—then beginning at one edge and pressing on the cylinder, so as to expel all globules of air that may be between the painting and the new canvas. These globules of air, like those of water, give rise to blisters. When you have applied your canvas as above directed, it is important to pass your cylinder again over the whole, to expel any globules of air which may remain. Then immediately re-apply your plane of wood, to insure a perfect and uniform adhesion of the canvas and painting. After allowing it to remain a few days undisturbed, remove the wood, and moistening the paper pasted on the face of the painting with tepid water, applied with a sponge, your painting is now ready for its frame.

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* Copyright secured.

† I shall take this opportunity to say, that the Astor Library is quite inaccessible, at least, I should say the *gentlemen* attendant. You cannot, though hat in hand, get a book. Why trouble them? However, I am convinced that such was not the intention of the generous bequeather.

‡ Until now, alcohol and naphtha are the only known dissolvents for gum-lake.

Should your painting have a blister, before beginning the operation for transferring it, it will be better to remove the blister.

Now, I shall give the process for doing this. The blister being caused by the expansion of a small quantity of air between the canvas and the painting, it is only necessary to puncture the canvas immediately under the blister with some small, sharp-pointed instrument. Then insert some glue through the punctures, and gently press with a soft linen on the blister, until all the air is expelled. The pressure must be light and regular, to avoid cracking. Then place a plane piece of wood on the blister, to insure its adhesion to the canvas. Of course, if the blister is very large, some wrinkling is inevitable.

BLEACHING PRINTS.

Old prints may be soiled in various ways, by grease, spotted by stains of sulphate of iron, or slightly yellow from age or acids.

I immerse the print one quarter of an hour in warm water; I take it out and lay it on a clean plank, not exposed to the sun, and placing it where it will be wet by the dew during one night. If the grease and the sulphate of iron have not disappeared, repeat the operation. When dry, press properly the print, and it will be bleached.

Colored spots not containing too much acid will disappear always, so will the iron stain. This sulphate of iron is generally seen on paper in which the primitive composition was impure.

As regard the stains by acids, I am far from recommending the chlorine, as it renders the print a yellow color, without removing entirely the effects of the acids which discolored the paper.

I must add that the printing ink is never altered by the warm water. Sometimes it happens that the indentation of the copper-plate or steel disappears, to the great annoyance of the amateur.

I give so long explanations on these three processes because amateurs may experiment themselves, especially for transfering paintings, though valuable ones are not transferred every day.

From the Cosmopolitan Art Journal.

SETH CHENEY.

We cannot occupy this page with a subject more truly worthy of notice, than by recalling to the readers of this Journal the memory of Seth Cheney, the crayon-artist, whose recent decease has left quite a void in the world of American Art. He died at Manchester, Mass., last fall, aged fifty years, his light going out just as the fullness of his fame became his inspiration and reward. The decease of such men it is a melancholy duty to record; but Nature knoweth best her own laws; she maketh the grass to be green and the water to be pure, and she causeth both to perish in their time. So with her nobler, because more immortal, creation—man: she calleth him into being: he acts well or ill his part, and then goeth away where it is ever day. Blessed be the great Mother of Life unto Life!

Of the life and experiences of our subject, we have little material for biography. From a just, though brief notice, by a cotemporary, we may quote:

"As a man, Cheney was known and respected for his moral purity and worth; and we have heard that he declined employing his talents in perpetuating the features of any person, however high in station, whose character did not command his respect. He was a careful and constant student of nature: but he was also familiar with all that Art had accomplished in the course of time. A residence abroad gave him an opportunity of studying the master-pieces of Art contained in the great European galleries, and also of examining the processes adopted by the best living artists. No man was better acquainted with the literature and theory of Art. He did not fall into the common error that patient labor is unnecessary to the development of genius. On the other hand, he believed that genius imposed the necessity of labor. The effects he produced by light and shade alone, without the aid of color, appeared marvellous to those who are not aware that the simplest materials are most effective in the creative hand of genius. Though Mr. Cheney's efforts were confined to portraiture in crayon alone, yet his portraits deserved to rank with those of Stuart, and Copley, and Vandyke. His heads have their characteristics: they are not simply delineations of externals form, but of character. He was equally successful with male, with female, and with children's heads. His crayon portraits do not challenge attention by elaborate detail in the finishing—they are lightly shaded, and very delicately and openly lined, but every touch has a purpose and an expression. No other hand could add a line without marring the unity and exquisite harmony of his work. Everything that came from the hand of Cheney was a gem, and the drawings he left behind him will be cherished by their possessors as among the choicest treasures of Art. It is pleasant to know that his talents was highly appreciated, and that his labors commanded large and remunerative prices. In his branch of Art, he was certainly without a rival."

It is to be regretted that Mr. Cheney has left behind no records of his observations and study, for the benefit of those to come after him. An artist who could, with his pencil alone, work out such beautifully creations, surely had something to tell about Art which it were well for students to know. In this day of haste and careless execution, the master who reminds of patient labor in detail—who gives to light and shade the study of the philosopher, and to passion and expression the acute dissection of the surgeon—is such as our Art can illy spare; and we, therefore, have to regret the demise of Mr. Cheney as a master, as well as a man and artist. This is not the proper place for a lecture to painters, upon the sin—becoming almost national—of careless study of Nature, and still greater haste in her reproduction: we shall take a future article for the purpose; but we may refer them with pride to Mr. Cheney's life and study, as exemplification of the True in Art, and the Good in Man: Be ye like to him, and your honors shall be worthily won and freely bestowed.

From the Jour. of the Phot. Soc.

ON THE COALESCENCE
In the Stereoscope of Figures of Unequal Magnitude.

9 Junction-Street Hull.

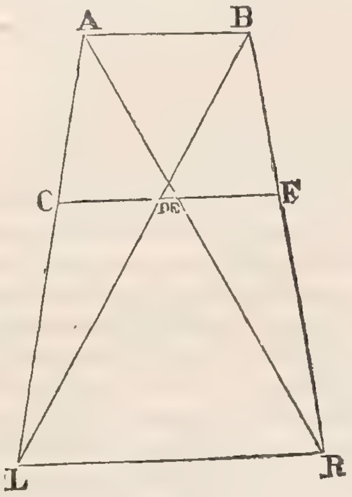
To the Editor of the Photographic Journal:

Sir,—In Mr. Wheatstone's original paper on the Stereoscope, published in the Philosophical Transactions for the year 1838, he stated it to be a fact, that any two pictures intended to be united by that instrument need not be of the same magnitude. To quote his own words: "Two squares or circles, differing obviously but not extravagantly in size, coalesce, and occasion a single resultant perception." And he adds, that the image occasioned by the union is of a medium size between the two original figures. This fact has been disputed by Sir David Brewster, who says that it is only through an illusion that they even appear to coalesce; because, in fact, a part or even the whole of one of the two images vanishes, without our perceiving its disappearance. He lays down the law, that when the retinal images in the two eyes interfere with each other, so as to confuse our vision, then one of them or some part of it is not taken cognizance of by the mind. This law he has certainly confirmed by sufficient evidence: but does it apply to the case in question? A repetition of the experiments, devised by both the philosophers whom I have named, has convinced me that it does not.

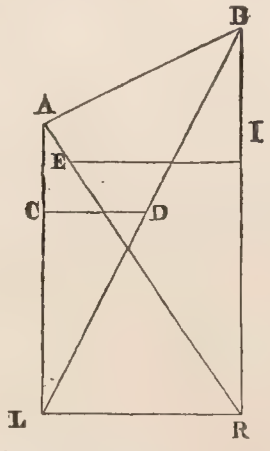
The following observations will show, that it is true that pictures differing in size will coalesce in the stereoscope, as really as when they are equal; and the theory of the stereoscope, which

Sir David has the honor of having satisfactorily established, will also readily explain why they do so. This theory was suggested by Mr. Wheatstone in his original memoir, but as he did not, at that time, see how to reconcile all the phænomena with it, he did not give it as the unquestionable explanation of them. The difference between these two eminent men, on this point, seems to me to be due to misapprehension more than to any real inconsistency in their ideas.

Let us take the instance of two unequal lines CD and EF. How would they be combined if they were equal? The accompanying diagram illustrates this question, in the case where they are united by the eyes alone, without the aid of an instrument; and the theory will also answer when an instrument is employed.



L and R are the left and right eyes: CD and EF the two unequal lines. They are united, by the convergence of the optic axes beyond them in the image AB; which of course, is an image only, and which obviously differs in size from the original lines of which it is composed. I call attention to this variation of size as illustrating the fact noticed by Mr. Wheatstone, that the compound image was, in magnitude, a mean between the larger and smaller picture. In making the actual experiment which this diagram suggests, CD and EF are with difficulty seen to have, when combined, the size AB, because it is with difficulty that they are referred by the mind to the true distance RB. The line AB is long supposed to be at the same distance from the eyes as CD and EF. This is owing to the artificial relations, here produced, between the adjustment of the eyes for distance and their adjustment for single vision. The mind may judge the compound image to be at any position between F andB, and the perceived magnitude will vary accordingly; but the first impression is that it is in a line with CD and EF, and therefore of the same size.



Now it makes no difference, with respect to the combination simply CD and EF, whether both are at the same distance from the eyes, and consequently of the same length, or whether one is nearer, and therefore smaller than the other, provided they are both seen under the same angle ALB or ARB. CD may even coincide in position with AB, and EF may be as close to the eye as distinct vision will allow. Nor is it necessary that either line should be parallel to AB. C and D may be any two points in LB, LA, however inclined, and the line joining them will nevertheless coalesce with EF and AB. The only condition necessary to this union is that the extremities C, D, E and F, of the lines should be seen by the two eyes in the directions A and B. And it is this condition which obviates the objections of Sir David Brewster, against the coalescence of unequal magnitudes on the ground that it would imply a new law of visible direction.

In the preceding diagram, though the two lines are themselves of unequal length, they are both viewed under the same angle of magnitude; and therefore the images on the two retinæ are of the same length, though the lines differ. But this equality is not necessary to their combination. The lines may be seen under different angles, so as to make the retinal images unequal as well as the actual lines, and still they may be such as to coalesce in vision. Nor will the law of visible position be broken then, any more than it was before. This is Mr. Wheatstone's original form of the experiment: CD and EF are neither equal in length, nor seen under equal angles, but by the law of visible direction they coalesce perfectly in AB, and as really as if they were equal in all respects. The observed size and distance of AB will fluctuate in this, as in the former case; but the first idea is, that it lies between CD and EF, and of a medium size, as it appeared to Mr. Wheatstone.

The difference between the two cases, which I have figured, is plain. In the first, the distance, or relief, as we may call it, of every point of the combined image is equal, and it remains parallel to the line joining the eyes; so that we do not readily perceive that it has undergone any change: but, in the second, one extremity of the image is farther from the eyes than the other, and the relief is strikingly apparent. In the one, the resulting line points equally right and left; and, in the other, it points over the observer's shoulder. The first is a case of direct vision, the second of oblique. Professor Wheatstone has stated his opinion to be, that the unequal pictures, seen in oblique binocular vision, must coalesce; for, otherwise, all objects seen obliquely would appear double. Sir David Brewster has given it as his view, that in oblique vision, one picture only is attended to by the mind. And there is no doubt of his correctness, where the inclination is so great, and the pictures are so dissimilar, as to create confusion in the sight; but, at smaller obliquities, where no confusion arises, it is clear that the other is the true hypothesis. The proof is, that the resultant image, from two plane projections of an object thus viewed, is seen, stereoscopically, in true relief. Sir David, in his experiment with unequal lines, having perforated extremities, did not unite the pictures truly, by what he forcibly calls the play of the optic axes, and, therefore, saw them more or less double, and without relief. But compare with this experiment the one mentioned in Mr. Wheatstone's first memoir, where only dots (or perforations they might have been) at unequal distances are employed. The two rows coalesce, dot with dot, and row with row, and the two experiments thus mutually explain each other.

I may add, in conclusion, that, in this union of unequal lines, the whole resultant image is not seen single without such a perpetual change in the adjustments of the eyes, as occurs in the vision of real solids: and Sir David Brewster's theory of the combination of corresponding points, pair by pair, is undoudtedly established. The absence of this change would certainly demand the abandonment of the most settled principles of vision.

Yours faithfully,
John Worden.

THE CHALCOGRAPHIC SOCIETY.

The fiftieth anniversary of the institution of this Society was celebrated at the house of Mr. Duncan. Half a century ago the society was established for the protection of the interests of engravers, which were considered endangered by circumstances arising out of a trial at law relative to the engraving of Copley's famous picture, "The Death of the Earl of Chatham." A principal object in the formation of this Society was the publication of the works of the members; but we believe but few prints have been published in this way.

judgment thus hastily passed is a monstrous one and signally unjust to that polite, amiable, generous and high-minded people, the Italians—a people whose character contrasts advantageously with that of any other with whom they may be compared. The great ancestors of this people produced the works which the students travels so far to study and profit by as perfect models, and it will be well for him if this consideration influence his disposition to estimate the existing race, whilst it will be very advantageous if he is so fortunate as to have opportunities of cultivating the society of accomplished Italians. If he be intelligent and well-bred, his humble position as to fortune will not lower him in the eyes of Italian friends or diminish their disposition to meet him with courtesy and respect, and from them he may learn much that will be of infinite service to him in his future career.

The Italians are singularly tolerant of English eccentricities; even in their churches they bear with conduct upon the part of tourists which would not be suffered in England, if foreigners conducted themselves here in the same manner. Allowance may be made for eagerness to see these fine monuments and the noble works of Art which they contain, but there can be no excuse for the stupid irreverence or affected scorn with which some travelers perambulate churches in Italy. Everything is generously thrown open to the traveller, an amount of freedom is granted of which we have but few similar examples at home, and a student with his heart in the right place will readily comply with regulations which are in every case liberal and perfectly reasonable.

Upon arriving in Rome, if that city be the student's destination, the plan of residence may at once be determined upon. A lodging may readily be procured, with or without a studio, at a moderate rent, by the month. It is usual to breakfast at the café, to dine at the trattoria; and thus the student is wholly independent of household cares, and may pursue his studies in uninterrupted freedom in the galleries, or in the Forum, or wherever his search after knowledge may lead him. His annual outlay for rent and living may amount, with great economy, to about sixty pounds.* It may be remarked in concluding this section, that a prudent care for health is absolutely required in Rome and other parts of Italy subject to malaria; the effects of a bad fever appear never to be conquered, paralysed limbs, imperfect speech, and other painful effects sometimes follow these attacks. Some constitutions are, evidently very susceptible, therefore, the student should be on his guard. In winter, there is little danger; in summer, he should avoid exposing himself to the heavy dew of sunset: sleeping with an open window, except in healthy localities, is a certain way of getting a fever; a chill following exercise, may also produce the same effect. There have been sad cases of early death from ignorance of, or inattention to, the rules which ought to be observed in countries infested by malaria. Let no consideration induce a student to visit infected districts in summer, or to sit down to sketch, or to stoop low, so as to bring the mouth near the ground, in places affected by the pestilential miasma of the Italian plains.

It has been assumed in this, and in the preceding article, that many young men, intending to be artists, but who have everything to learn, will continue to visit Italy, as heretofore, in search of instruction. No one acquainted with student-life in Rome can be ignorant of the numbers who visit that capital of the arts annually, and of the fact that many do so with little knowledge of art beyond that of an elementary character. To these students it has been suggested to extend their knowledge, to exalt their ideas of art, and of their functions as artists by a more decided and extensive course of literary study than is common; a few useful works were indicated, and in the perusal or examination of these the student will be led to that of many more of value and importance. The student was also recommended to extend his studies and researches beyond the narrow circle, theoretical and practical, which not unfrequently leaves the paintter, although skilful in painting heads, unable to put a table into perspective; the sculptor, unacquainted with any process of art but modelling, and cold to the value and merits of painting; and the architect, so far as drawing is concerned, the slave of his compasses and T square, indifferent to the merits of any art but his own.

The youthful student was warned against the naturalism which is corrupting some branches of art upon the continent and in this country. It is to be hoped that our interesting and characteristic school of sculpture may remain free from an element which, judging by many of the productions from France and Italy, in the Crystal Palace, is destroying the purity of this noble art elsewhere. Those phases of naturalism which degrade the art of painting in this country to low and vile represations must also be deprecated, when we see the walls of our provincial exhibitions covered with pictures illustrative of vulgar vices and customs bought by Art-Unions and private purchasers, indicating upon the part of all a depraved taste and mistaken views of art and of their duties. If the young artist does not intend to enter upon the higher walks of art, he ought not to forget that in those of a more homely character it is still his duty to exalt and to refine, and there is much to occupy the pencil dedicated to the illustration of scenes of every-day life, without painting those which are utterly common-place and trifling, or revolting.

During his travels the student will hear foreigners express opinions on Art, and upon the merits of the English school, which will be new to him, and may strike him with surprise; the apparent indifference to the study of style, and of form, is frequently commented upon by continental critics, with no little severity. Of our artists, the immortal Flaxman is the only one who is acknoweldged to have exhibited a *great manner*, and whose powers are universally recognized. They urge upon us, and with reason, the necessity of more attention to this subject, and that no school can be considered great in which the first element of greatness is wanting, and that we should look less to Reynolds and others of the last century who totally deficient in greatness of style, and merely melodramatic in sentiment, weak in form to the last degree, and painting more upon the principles of decorators than as artists, have bequeathed to their successors an evil heritage and example which unhappily influence our school to the present day. The student may be inclined to retort and to criticise the feeble mechanism and defective coloring of many of our continental brethren, but he will do well to weigh calmly the criticisms upon our alleged deficiencies; and it may be permitted to advise the student whilst examining the methods of handling in the pictures of the great masters, the manner of glazing, the speculating upon what the dead coloring may have been (a kind of criticism so characteristic in our countrymen,) to give a portion of his attention to the manner of drawing, and to the sentiment, expression, and composition. The necessity for more attention to form and for a more complete and conscientious style of painting than prevailed in the last century is now evidently felt; may our rising artists give these subjects their most earnest attention, and may they succeed in adding to the other admirable qualities of our national school, that of a great manner in design and painting. The beauty of the English people is a frequent theme of admiration with foreign writers, and they say to us, "When nature has done so much for you, can you not present the world with an ideal formed upon the beautiful national type?"

In studying the great masters with a view to the formation of style, our young artists have frequently evinced a disposition to follow the letter rather than the spirit of their works; nor is this limited to our own school, it is found in those of the continent, especially in Germany, of one of whose greatest artists it was remarked by a Frenchman, referring to this disposition to mere imitation, "Il est nourri des grands maitres, et les rend par morceaux." There is also much in our usual modes of expressing ourselves upon the merits of the great masters which is calculated to mislead the student, and to induce him to look to special artists as models of certain qualities, and to overlook the merits of others, and prevents him from seeing that the greatest masters exhibit in their works that completeness, without which they would not be great. Thus, when form is the subject of conversation or remark, Michael Angelo is specially referred to, Raphael when grace, Titian when color. The consequences of this partial mode of thought have been at different times apparent in our own and other schools, and have been a source of infinite mischief to students; thus, Titian exclusively becomes the model for color; yet, if it be the student's object and ambition to embrace the highest walk of Art, the principles of Titian may mislead. Buonarotti in the incomparable ceiling of the Sistina, Raphael in the Stanze, but especially in the "Mass of Bolsenna," have illustrated the true application of the principles of harmonious coloring in monumental art with far greater success than Titian in his mural pictures, as witness the Chapel of St. Antonio, in Padua.

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* A student's annual outlay at Munich need not exceed twenty-five pounds per annum for rent and living, and education in the Academy College and access to the library are free.

A French student in Paris can manage with about forty pounds a-year: an English student requires more than this however. His monthly payment for admission to the atelier of a first-rate artist will be about one pound. If he obtain access to the Academy there are no fees; he may attend the ectures at the Sorbonne free; and there are many other opportunities of free ltudy. His only educational expense, in addion to his fee to his master, ss for the living model. The moderate cost of living and liberal provision ior free education of the highest class on the continent, may readily acfount for the emigration of students from this expensive country.

Space will not admit of more than a few general remarks upon a different method of studying the works of the past As he visits the museums, galleries, and churches of Italy, the youthful student may find instruction of the most valuable nature in the works of *every* era, nor ought he, as is too frequently the practice, to give himself exclusively to the study of some favorite artist or period. Thus, in Greek Archaic Art beside other instruction, he will find a perfect development of those principles of composition suited to the union of sculpture and of architecture, which have been so grievously forgotten in certain pediments lately filled with sculpture in London. In the statues of the next period he may mark the influence of the study of nature upon the sculptors of Greece, and in that study their rejection of all that is trite or common-place, or vulgar. Then follows the greatest development of the ideal style, and from its contemplation, and the noble lessons which it is ever giving, he may pass on to remark the change which gradually took place in the passage from that first great style of Art which represented immovable greatness of soul, to that which appealed to gentler emotions and represented the human form influenced by passions and sorrows, —thereafter the growth of naturalism,—its most magnificent phase in the agonized Laocoon, its further development in the Dying Gladiator.

When he turns from his study of classic models to that of the works of the Italian schools, the student is earnestly recommended not to follow the herd by regarding with indifference the works of the early masters because at first sight they appear to him, to use the usual phraseology, "stiff and uncouth;" he will do well to reflect that Giotto worked in an age of extraordinary mental activity and power, that by the universal consent of his own and succeeding times he has been placed very high amongst great names. The student will do well to mistrust the judgment which so commonly misleads the young in the presence of the works of the early masters. From the works of Giotto and Orcagna he may receive invaluable lessons in pose and action, expressive of dignity, or emotion; in which these two great masters never have been excelled. The purity and devout fervour of fra Beato, the terrible energy of Signorelli, who in so much anticipated Michael Angelo, and if he does not equal the Great Florentine in his finest works, is also wholly free from his faults; the naturalism of Masaccio, combined with historic dignity, may each, in their turn, be subjects for thought and judicious study, and the student will do well if he make many careful drawings from their works, and from those of other masters of their times.

The change of ideas which followed, exemplified in the pictures of Ghirlandajo, Perugino, Pinturicchio, and other great artists of the remarkable epoch which preceded that of Raphael and Michael Angelo, should receive the attentive consideration of the student. He should read carefully the admirable criticisms which have been made upon the pictures of this period, and seek for and listen to the remarks of experienced artists upon them. The object of these brief remarks is to induce students to devote a portion of their time to the study of masters whom they have shown too much disposition to pass by altogether, or, at best, to regard with small attention.

By the examination of these, and other works of the great masters, in an earnest, devoted, but large spirit, and by the study of nature as they studied her, the student may, if the Almighty giver of talent has been pleased to endow him, become a great artist also, which he never can hope to be by the dedication of his talents to a narrow practice, or to exclusive imitation of the works of some particular model; his object ought to be to produce images of nature as a true and great artist, not of other men's images of nature however admirable.

While on his travels another interesting and profitable subject for thought cannot fail to present itself to the intelligent student, when he sees the number, extent, and magnificence of the works of Art existing in small States. So far as the art of painting is concerned, there can be no doubt that it was to the universal practice of fresco that Italy owes this distinction. An artist of the cinque-cento could cover the walls of a public monument with frescos in the time now required to produce an easel picture of importance. The "Incendio del Borgo" was painted in forty days; the Galatea," in the Farnesina, was painted in eleven or twelve days; Raphael could paint three figures, the size of life, in fresco, in five days, and other masters were equally rapid, as may be easily ascertained by an examination of their works. The secondary artists also painted with extraordinary rapidity in fresco; the pilasters in the Loggia occupied seven days each; allowing as much more time by these sure and masterly hands for the preparation of the cartoons, we see how it is that so many works were produced. It is probable that the "Icendio del Borgo," painted in the manner and at the rate of modern pictures would occupy several years. It is also evident that frescos thus rapidly painted, must have cost less money than is now expended upon easel pictures, and we may thus readilly account for the number and extent of the paintings existing in Italy.

The extraordinary durability of this method of painting is also worthy of the student's attentive consideration; he may contrast the easel pictures of Cimabue with his frescos in Assisi, the first cannot possibly give other than a faint idea of this great artist's merits, the second are, in parts, as perfect as when painted. But for their mural paintings we should know nothing of the transcendent merits of the immortal Giotto, of the magnificent Orcagna, or of many other remarkable painters. No oil picture a century old remains, or could have remained, in the state in which it came from the master's hands, but there exist frescos of the thirteenth and fourteenth centuries, which are in parts still pure and brilliant as when painted.

There are many other subjects for study which space excludes from present consideration, but there is one subject which may be briefly alluded to—the young artist's intelligent study of the art of the ornamentist in Italy. The Exhibition in the Crystal Palace proves the deplorable state of ornamental design in this country; it is much to be desired that students of fine art should give a portion of their time to the examination of this subject; it is one which involves too many considerations to be disposed of in a few lines, but it is earnestly pressed upon the attention of our travelling students, more especially as it is evident that the time is at hand when the artist will be more widely employed in works of decoration.

The decorations of the Hôtel de Ville have lately attracted the attention and excited the wonder of our countrymen; these were executed by well-known and accomplished artists. M. Vauchelet and other eminent men painted in the Hòtel de Ville, M. Abele de Pujol in the Bourse, and when it is a question of decorating a public edifice in Paris or in Germany the example of the cinque-cento is followed, and the work is placed in the hands of *artists*, and not as with us in those of foreign pretenders or advertising decorators, many of whom, scarcely know one end of a brush from the other, and are dependent on foreign publications for their ideas of art. Our system is rotten from the very foundation, nor can we make matters better, or obtain results as favorable as those in Munich or Paris, till we adopt the same plan of operations.

SUGGESTIONS TO STUDENTS OF ART ABOUT TO VISIT ITALY,

WITH REMARKS UPON EDUCATION IN ART.

The following suggestions are intended to assist the youthful and inexperienced student of Art upon his travels in Italy, and to save him, so far as it may be possible, from a variety of inconveniences, and from needless loss of money, which can be obviated by means within the reach of the most inexperienced. Besides inconvenience and loss of money, the student is apt to have his judgment warped, and to form erroneous ideas and opinions of foreigners, by the annoyances of the road, which, in the end, are injurious to himself, by shutting him out from many sources of inquiry, instruction, and enjoyment. It is hoped that the following hints suggested by an acquaintance of some years standing with student life in Italy, may be of service to those who are about to travel for the first time.

The first object of the student before setting out upon his travels, ought to be the acquisition of a knowledge of the French language, sufficient at least to read it with facility, and to carry on an ordinary conversation; and the study of Italian should also be commenced before leaving England. A student who has not sufficient industry to acquire a knowledge of French and Italian, places himself at a great disadvantage in travelling, and shuts himself out from the best means of acquiring information, as well as from pleasing and improving conversation with accomplished and well-informed foreigners, whilst he exposes himself to misunderstandings and their disagreable consequences, at custom-houses, inns, and elsewhere, and to an amount of inconvenience which is indescribable. Numbers, indeed, go abroad unacquainted with any language but their own, and by the wealthy traveller who can command interpreters of his wishes, and secure the services of persons speaking his own language, the want is perhaps unfelt; but the student whose means are limited, must depend upon himself--friends cannot always be near to help him, and a few month's industry before he leaves his home, may save him from the wretched dependence of the traveller ignorant of the language of the countries which he visits.

The material preparations of the student for his travels need neither be costly nor extensive; the smaller and lighter his portmanteau the better; it should contain two suits, one for morning, another for evening wear, and a sufficiency of other clothing for comfort—clothes, such as are usually worn in England, need only be taken; as to those lighter fashions of costume suited for summer wear in Italy, it is better to make provision there, than to increase the weight and bulk of luggage by purchasing such articles before setting out. The preservation of health in Italy depends, to a certain extent, upon the nature of the clothing worn, and as it is impossible to calculate what may be the effect of the Italian climate upon the constitution, precautions are requisite which would not be thought of in the healthier climate of Great Britain. That which would prove a common cold in England, may be a fever or ague in Rome; and many a student has been stricken, and some have died from inattention to simple precautions, indifference to the advice of experienced friends, and a foolhardiness for which there is no excuse. One safeguard against the effects of sudden chills, in those parts of Italy where malaria is common in summer, is to wear flannel, and therefore this should form part of the contents of the valise, as it is not easily procured, of a good quality, in Italy.

The nature of the travelling dress must depend upon the season, but let that of the student be sober in its form and colors, unlike the eccentric costumes, worn by many, which mark the wearers fit prey for the harpies of the road. A cloth overcoat for night wear and mountain passes, and a linen blouse to save the clothes from the almost intolerable dust of summer travelling, are necessary—this last article is especially useful, for, when cast off at the morning and evening halts on the road, it leaves the costume comparatively free of dust, and a brief ablution fits the traveller to proceed at once upon his tour of inspection in places where there is anything to be seen.

It is quite unnecessary for the painter in oil colors to carry a store of artists' materials with him; everything needful can be procured in those parts of Italy where artists usually reside, at a cheap rate and of very good quality. The water-color artist, however, will not find an equally good supply of materials; especially of the choice qualities of paper to which he is accustomed at home, so that if he cannot be satisfied with Whatman's, which is generally procurable everywhere as "Carta Inglese," or with the French or Italian papers, he must carry a supply with him of that which he prefers, as well as of the best English hair pencils; colors in cakes are procurable everywhere. The architectural student had better carry with him English instruments for drawing and measuring: and every student of Art will find a light drawing board, fitting into his portmanteau, a T square, by Tachet of Paris, an ivory triangle, a pair of pocket compasses with pen and pencil legs, a Wharncliffe knife, an ivory foot-rule, a compass, and a powerful opera-glass for examining works of Art at a height from the eye, invaluable in travelling. A stock also of the paper called "Bankers' Post," is very serviceable, as with a little mouth-glue it can be laid upon a drawing-board in three minutes, is dry and fit for use in two or three more, and is admirably suited for architectural memoranda in pencil or in water color, whilst a number of sheets occupy a very little room, and add little weight to the luggage. A good telescope is an agreeable companion, if the student can afford the purchase, and an excellent substitute for the pistols with which luggage is sometimes needlessly and foolishly encumbered.

The next consideration is the passport, the utmost attention is recommended to the perfect regularity of this document, and whatever may be the private opinions of the bearer as to the regulations of foreign Governments in respect of passports, it will be found advisable to impress impatience, and to comply with as good a grace as possible with laws which can be enforced in a manner that may be found both disagreeable and expensive. It is rarely necessary for a traveller to vist the police or other offices in person with his passport; a "commissionaire" is readily found at every hotel willing to procure the needful signature for *a consideration*, and this is the best plan unless the bearer has the utmost confidence in his own powers of endurance. The passport is a costly document, but the English traveller has not much right to grumble at the foreign charges, those by his own consuls being higher in most cases. The passport is demanded at frontiers, at the gates of fortified cities, and at hotels; always present it at once, and at the gates of cities, give a small fee to the gendarmes who bring it back when examined, or else the luggage will inevitably be taken down and turned over. Upon reaching the end of the journey the passport is finally retained by the police, and a document is given in its place, and as the British resident in Italy need never enter a police or tax office, and never is visited by a tax gatherer, never sees or hears of those slips of paper which remind him so unpleasantly of the claims of government at home, the irritability so often manifested against that solitary tax paper, the passport, is somewhat unreasonable.

It is absurd by impatience and complaint to increase the disposition of Custom-house officials to annoy and detain the traveller. On the Continent generally, it will be found at most custom-houses, that a frank, cheerful demeanor, and a civil address to the officials will obviate detention and annoyance. The Englishman above all others is bound to be patient, for from one end of the Continent to the other, in the least enlightened, and worst governed countries, he will find less discomfort and detention, than in the Custom-houses of his own enlightened land, and no Jack-in-office between Calais and Palermo is comparable to his own for the disagreeable and provoking qualities usually ascribed to such persons. The young traveller will soon find that impatience and vaporing increase his discomfort in a tenfold degree, the true plan is to maintain an imperturable temper. Thus, a cheerful salute on arriving at a custom-house, the keys instantly produced, ready answers to the usual questions as to whether there is anything to pay duty, and probably the examination will be despatched in a few minutes; but adopt an opposite course, and the portmanteau will be emptied with no gentle hand. If the course above recommended fails, as it may do in some of the Italian custom-houses, the realization of Mark Tapley's odd idea of "being jolly under creditable circumstances" will be complete, greatly to the advantage of the mental state of the victim. Luggage, it may be remarked, is examined at every frontier, it may be at the gate of every considerable city, how to avoid this has been already suggested; it always is examined on arriving at the end of a journey. A fee or bribe is often suggested by the officials themselves on these occasions, and compliance saves time and trouble, nor need the travelling student be abashed in the presence of handsome uniforms, epaulettes, and cocked hats; but little government business is done in Italy without these aids to appearance, and the dollar or half dollar is as welcome to these gaily clad officials, as to others in meaner costume and of lower rank.

The different modes of conveyance in use in Italy are described in guide-books, but of these that most suitable to the artist is by Vettura, as by this primitive mode of travelling, time is given to see a great deal and to make many a sketch. The same carriage, horses, and driver, perform the journey at a rate rarely exceeding forty miles a day, resting every night at a more or less comfortable inn, and stopping daily for two hours at a half-way house, generally in some interesting town or amidst beautiful scenery. The Vetturini or drivers, are divided into two classes, a small and a large one, the first behaving well and treating the traveller fairly, the second by the rascality of which they are capable, realizing the saying "truth is more wonderful than fiction." Two kinds of bargains may be made, one by which the traveller pays for his place only, undertaking his own expenses by the way, the other by which the Vetturino pays everything. If an honest Vetturino be employed, the latter is the better plan, as it saves disputes about bills at inns; if however he be of the second class, it is infinitely the worst, as the Vetturino pays, whatever his actual bargain may be, the smallest sum possible for his customer's accommodation, that is to say fifteen pence per night for bed and board, and this is called Pasto da Vetturino. It is an excellent plan for a party of students, say, four, to hire a carriage amongst them at so much per diem for carriage and living; and, to insure, so far as it may be possible, good treatment, the bargain should be made with the most respectable propriety in the place; whilst all proprietors of single carriages, unless they enjoy a very good character, and all go-betweens, should be carefully avoided. A written contract is always made out and signed by both parties, and into this should be introduced the number and quality of meals, and the class of sleeping accommodation required; by this means the student may fix whether he will accept and pay for Pasto da Vetturino, or expend more and live better. If the driver give occasion for suspicion, by providing bad fare and accommodation, the traveller can then give his own orders at each hotel, stating the prices which are to be paid. These hints may assist to a certain extent in enabling the travelling student to meet his Vetturino upon tolerably level ground, but the Italians who deal with travellers frequently shift their mode of attack, when one scheme for cheating is found out, they try another, so that it is very difficult to give advice which can be always useful or adapted to every emergency. In all cases of dispute it is best to be calm and temperate, it is of no use adding the pain of mental commotion to the other annoyances of dealing with the heroes of the road in Italy, whilst the cool collected traveller is ever the most successful in saving his purse.

The railway system is making slow but probably sure progress in Italy, and may finally displace the present methods of travelling. The towns erected when defence from aggression was so needful, stand for the most part upon the crests of hills, and consequently the roads wind up and down a series of ascents and descents, commanding beautiful scenery. Railways will probably pass along the level plains which succeed each other in a series along the coasts of Italy, having many singular characteristics from one end of the Peninsula to the other, and the artist may be forgiven a sigh as he thinks of the approaching changes in that classic and lovely land, and recalls his old experience of the quiet drive through ever-varying and lovely scenery which Vettura travelling afforded; of the ascent afoot, towards evening, to the picturesque old town in which to pass the night, of the glimpses of its ancient walls against the evening sky, of the entrance within the embattled gateway, of the first sight of the quaint and busy street within, of the waiting there for the jingling Vettura, slowly ascending the steep, of the stoppage within the wine-clad court of the hotel, and then of the run whilst light lasts to the Piazza and the Cathedral. Contrast with this old-fashioned mode of travelling, so well suited to the lover of the picturesque, a rapid transit over the flats of the Maremme, and, at the end of the journey, an arrival at a common-place railway station and railway inn. Then again for Apennine passes, with their grand scenery,—tunnels, and deep cuttings will be a miserable exchange. The present rush into Venice by railway contrasts unfavorably with the old approach down the Brenta, with all its lovely pictures. Who can forget the arrival at the beach at Mestre, the sail across the calm sea, and Venice seen rising from the waters in the evening sunlight, or the same sail at night, and the strange feeling with which the dark outlines of buildings against the clear starry sky were regarded, and the gradual breaking on the senses of the evidences of a city as the boat moved on through the dark waters.

But to continue the suggestions to students, innkeepers may now be considered. Students are advised not to imagine every innkeeper upon the road a professed cheat, this will only add to their own discomfort. It is the practice in Italy to bargain both in hotels and in shops, it involves loss of time and other inconveniences, but is conducted by the Italians themselves with the utmost good humor. Upon entering an hotel, in compliance with this custom, ascertain and fix the sum to be paid for a bedroom, and as it is quite unnecessary to eat in the same house, the following plan will suit the means of a travelling student, breakfast at a café, dine at the table d'hôte of the hotel, if there be one, if not, dine at a restaurant, and as in all these places the prices are fixed, there need be no trouble or dispute about the bill.

If circumstances, however, make it needful to eat at a hotel, order a meal at a fixed price; it is not possible to escape being fleeced at times, and to a young man with a shallow purse it is provoking, but observance of the above rules will insure tolerable economy. In some towns there are no hotels, and certain proprietors admit strangers to their houses and feed them for a consideration; this is not pleasant, the only way to act is to regulate the prices as much as possible by experience gained in hotels. A general rule which has been recommended, to offer a half or two-thirds of the price asked in shops is not a good one; many Italians deal in an honorable straightforward manner, and in every case therefore a courteous demeanor should be observed, to escape giving pain to honest men, whilst by a little prudent inquiry beforehand, a tolerably clear idea of prices may be gained, so as to escape the exactions of knaves. Artists' color-men sell at moderate and fixed prices, and the prices of all the articles which a student is likely to want are easily ascertained from resident artists.

The other persons with whom a student must come in contact are servants, custodi or keepers of galleries, models, and vendors of antiquities. Servants at hotels receive a small fee, others, called "di piazza" are always ready to conduct the stranger to see the lions; and it is a saving of time to employ one of these where the stay in a place of interest does not exceed a few hours or at most a day: even when it is intended to make a stay of several days, it is a good thing to employ a guide for one day to point out the principal monuments and galleries, and to give a general idea of the town. Custodi are found everywhere, and are paid a small fee on each visit to the gallery or monument; and if a ticket for study is taken out, a suitable fee is given to the custode when the proposed works are terminated. Most students fall into the traps laid by vendors of antiquities; it is prudent to avoid all purchases till a residence of some time and study in museums have matured the judgement of such objects.

The classes that have now been mentioned, are those which hasty travellers are apt to consider types of the nation; the

The student will do well to reflect that the great masters, in addition to their extraordinary powers as artists, were men of varied knowledge and acquirements, they stood upon a level with the most distinguished literati and philosophers of the day; these universal men painted monumental and easel pictures, produced statues and other works of sculpture, built palaces and churches, fortified cities, formed canals; their genius and cultivated knowledge influenced all the arts, and were felt everywhere from the palace and cloister to the warkshop of the mechanic. The student must feel, if he profits by his travels in Italy, that the present system of education, however good it may be in some respects, is far too restricted a plan; and that it is greatly to be desired that the education of the artist could be made to resemble in many important respects that given in preparation for other liberal professions. It may be urged that the student of Art may attend college like others; he might do so if the lectures were freely open to every one as at the Sorbonne, but few students are in a position to meet the expense in this country. Besides, it is necessary to *force* upon the attention of the inexperienced student the desirableness and possibility of other study than that of the mere practice of his peculiar branch of Art. If lecturers upon various branches of science and literature, as well as upon Art, were appointed in our schools of fine art; and if *honors* were granted as at the universities, and a high standard of acquirements indicated as necessary to the artist, his position in the eyes of his practical countrymen would be improved, and consequently his use in the commonwealth immeasurably increased. The prevailing ideas of the functions and duties and *status* of the artist must be got rid of, and better ones substituted before art can take its true place, and produce its wholesome influence, and truly minister to the welfare, instruction, and enjoyments of the nation. However desirable it is to improve and add to the numbers of our Schools of Design, it is of still greater importance to the general welfare to enable our academies of Fine Arts to extend and improve the means of educating artists. It may also be remarked that the present divorcement of the fine and industrial arts is fatal to the interests and advancement of both, and the sooner this truth is felt and acted upon the better. Other People have wisely educated the sons of labor in a knowledge of art, but they have not like us, in a spirit of ignorance and grovelling economy, looked to them to support the credit of the country as designers as well as artizans. It is not to men who give an hour or two to be the study of art after the toil of the day is over, or by anticipating that toil at an early morning hour, that we are to look for proficiency in arts which demand so many years of study; our low view of the *status* and education of this class of artists will ever bear the same fruits of disappointment and inferiority of position.

How can the art of design applied to manufactures flourish in the hands of men who are deprived of that stimulus to exertion —public sympathy and applause, and whose merits redound only to the fame of the capitalists who employ them? On the continent now, as in former times, employers are proud to name their designers, as it adds to their reputation for taste and good sense to have employed good artists; thus the designer like the artist enjoys an honorable reputation. It is needless to describe the very different position of the British artist of the same class.

A small annual grant of about 18,000*l*. a year proportionably divided, would place our three royal acadamies in a position to give a high education in art, literature, and science. In the academy at Florence we find the following classes presided over by Professors,—painting, sculpture, architecture, elements of drawing, perspective, anatomy, history, mithology, mathematics, hydraulics, engraving on copper, and on gems, ornament, scagliola, drawing from flowers, study from the life, chemistry, and mechanics; and in connection with this last subject a great amount of instruction is afforded in many branches of science. In the same Academy we find a complete school of music and declamation, and of mechanics and trades. It may not be unprofitable to contrast the ideas which prevailed in the small state of Tuscany in establishing, regulating, and preserving this academy with its large body of professors, its fine collection of casts, its series of pictures by the greatest masters, its collections of models and manufactures, its galleries, class rooms, &c., &c., with those that prevailed for a similar purpose in England.

C. H. Wilson.

OUR ILLUSTRATIONS.

The first of our illustrations this month contains portraits of Mrs. Barry and Miss Taylor of the Boston Theatre; negative by Messrs. Whipple & Black. The second is a portrait of Major Bradley of the Nicaraguean Army, under Gen. Walker, who has recently returned to New York to recover from the severe wounds received in the last engagement with the Costa Ricans at Rivas. The negative by S. A. Holmes, Esq., of New York. These pictures are printed upon "Marion paper." The best impressions were made on those sheets, salted with a solution of 200 grains chloride ammonium to 1 gallon of water. The nitrate solution was the same as for the March pictures. The toning and fixing bath contained only half the quantity of gold, viz. 2 grains to the ounce; 1 lb. hypo. soda to the gallon; the whole nearly saturated with acetate of lead.

Our subscribers who are acquainted with photographic manipulation, will not cavil with us as to the quality and tone of our pictures. They are fully aware how difficult it is, even when they are constantly using the same paper—and that of the best quality—and the same toning and fixing baths, to obtain the same results always ; and they will therefore appreciate the character of the work presented to them from month to month, in view of the fact that we each month vary our printing formulæ for the express purpose of giving the different phases of which this part of the photographic art is susceptible. Different papers require different treatment even with the same formulæs. The same degree of intensity in printing on Marion and Canson papers, produce entirely different results. In the latter, the shadows dissolve out—in the toning bath—more readily and require closer watching; while in the former they are slow in changing, and are rather inclined to become milky and opaque instead of clear and transparent in the same length of time. The principal fault in the manipulation of these pictures, was in leaving them too long in the toning bath.

From the Scientific American.

RELIEF PICTURES.

On the 20th of January last, J. Bishop Hall, of this city, obtained a patent for a peculiar method of treating pictures to produce a high degree of artistic and stereoscopic effect of objects, applicable to photographs, engravings, lithographs, and similar pictures. The principal of the invention consists in combining two or more photographic or other prints to form one picture. The pictures must be fac-similes or duplicate impressions, on semi-transparent material. If the invention is to be applied to photographs, let two copies be taken in the usual way, upon photographic paper. The paper of the two pictures is then rendered somewhat transparent by the application of oil to it. Each picture is then to be cemented to a seperate plate of glass by means of copal or other suitable transparent varnish, which must be previously applied to the glass, and partially dried—attained to the state called *tacky*. In applying the picture to the glass, care must be taken to press out all the air bubbles between the paper and glass. Each picture is then allowed to become dry, or nearly so, when it will be well to scrape off the back carefully to remove any excresences. After this is accomplished, one or more coats of copal or other suitable varnished is applied to the pictures; when these are dry, the two plates of glass are joined together in such a manner that the lines of the pictures coincide, in which position they are cemented or framed together, and excluded from the atmosphere.

This is a description of the invention in it its simplest form. Different effects may be produced when the front picture only is executed or attached to the plate of glass, and the second one placed some distance behind it so as to correspond with the other. Fine effects are produced by cutting out certain parts of the back picture, thus allowing more light to pass to the front one. Colors may be applied to the back picture only or partially to the two, so that one color on the front picture may have a ground of another color. A back-ground of white light, or reflecting material, placed behind the pictures, such as enamelled white paper or a plate of enamelled white china, produces good effects. The back ground may also be silvered over to produce effects according to the taste of the operator. The idea of thus combining two or more pictures, printed on paper, or taken by photography—to make them appear like solid pictures, is certainly an ingenious and quite artistic invention.

Pictures produced according to this process are called *Hallotypes.* They have an appearance something like wax figures, but on the whole are artistic and beautiful. A number of them are on exhibition at Gurney's daguerreotype rooms, Broadway, in this city. The back-ground of them is dark, and the figures are colored, and in our opinion they produce a very fine effect.

For the Photographic & Fine Art Journal.

ART.

CINCINNATI, O., April 3, 1857.

MR. H. H. SNELLING,—*Sir:*—I send you a few thoughts for the *Journal* suggested by late associations, presuming you are still engaged in the arduous labor of developing scientific truth; diffusing light around the goddess Art, and guarding the portals of her shrine from unhallowed invasion. Sitting as queen among her sister deities, she confers her favors only on the few, while the many are in vain pouring their voluntary offerings at her feet. The faithful devotee, with an undying zeal, which increases at every step of progress in ascending the summit of fame, falters not, nor wearies till the top is gained, and the laurels of victory triumphantly won. Then at will, he may deck his brow with wreaths of unfading honor, and bind as a girdle the homage of praise around him forever. Much is it to be regretted that the word *Art* is so often degraded by misapplication. An unworthy performance, an unskilful performer, or dishonest trickery, is often christened by that term to attract the attention of the credulous and undiscriminating; the consequence is, the proper distinctions between the true and false are not always made, while the conscious blush often crimson the cheek of the truly meritorious by such associations. Yet heaven-born Art, rising above all degrading influences will live, and quickened into activity by its Divine Author through the inspiration of true genius, will yet achieve greater triumphs, and wear a more glorious diadem than ever graced the brows of the renowned of Italy and Greece, or the painter heroes of olden time. Let talent and genius be encouraged, let the Artist throw off the fetters of antiquity, let him follow the scintillations of his own light, drink deep at the fountains of true knowledge, cultivate an earnest love for the pure and beautiful in the extended panorama of Nature, and he need not fear to enter the lists with the immortalized of the past. Why should he? Does not the same motives exist to urge him on to success as formerly? Does the noon of the nineteeth century afford less light to warm into life the images of his fruitful imagination? Need he fear that his efforts will be unappreciated, and posterity withhold his reverence? Let the history of the past answer these queries. Let the almost idolatrous worship now paid to ancient painters of renown, be sufficient to convince the most fearful, that should he not live to receive the reward due to successful efforts, and attain to his highest hopes, that coming generations will do him justice. The world already owes a lasting debt of gratitude to those whose achievements in science and art have so largely contributed to the sum of human happiness. Millions are blessed through these instrumentalities, and thousands are endeavoring to cancel the debt by a useful application and generous appreciation of these aids to wealth and progression. May those noble and self-sacrificing spirits, those pioneers of progress, reap richly of what they have sown. May we not hope that when the coming future shall reflect its increased light back upon the past, that true art, true merit, true science, and true love for all that pertains to humanity, will be truly reverenced. To live alone for fame is too unworthy a motive to impute to those who have been willing to battle with prejudice and ignorance; a higher and a holier purpose has urged them to action; and we will charitably believe the same spirit is guiding all engaged in the same innovating contest. But I shall trespass upon your patience and pages. I have not seen the *Photographic & Fine Art Journal* since December. Have been in this city for some time taking lessons in coloring photographs. Photography here is in the hands of those well calculated to do honor to the profession. The 25 cent advertisements often meet the eye; yet those Galleries which maintain an honorable price are well sustained. The Galleries of J. P. BALL, J. PORTER, FARIS & HAWKINS, with their courteous and gentlemanly proprietors, are an honor to any city, and Cincinnati may well be proud of her artistic reputation, as well as many of her other characteristics. An enlightened community are always sure to sustain and encourage true genius, and the more so, as they rise in the scale of mental wealth and intellectual cultivations.

MARCELIA W. BARNES.

LIGHT IN PICTURE GALLERIES.

Having observed a paper in a rescent number of the *Art-Journal* by Mr. C. H. Wilson, "On the lightning of Picture and Sculpture Galleries;" I beg to offer a few additional observations on this important subject. The plan advocated by Mr. Wilson has recently been adopted in the gallery of the Louvre in Paris; and with such excellent results as must necessarily impress every one familiar with the previous arrangement of that gallery, with a sense of the immense advantages of the new mode of lighting.

Formerly the Louvre was a complete chaos, so far as concerned its contents; the pictures were hung without system or selection, and great numbers shrouded in complete obscurity;—under recent managment, however, many improvements have been effected. The celebrated long gallery to which I would particularly refer, and which contained the most important pictures of the collection, was formerly very unequally and inefficiently lighted: it is divided, as many of your readers may be aware, into three lengths or divisions, which, from having apparently been constructed at different periods, have induced certain changes and modifications in the architectural detail of the gallery both inside and out: of these, the centre portion was formerly the worst off for light, being lighted from low side windows deeply recessed in the massive wall; the two other divisions were better supplied but still only imperfectly, from skylights on both sides of the semicircular vaulted ceiling; these latter divisions remain much as before, although important ameliorations have been effected in other respects; but the centre portion was a sort of cellar, and the pictures it contained all but invisible; it is here that the new plan has been introduced. It is impossible to imagine a greater change than that now produced; indeed, the whole aspect of the gallery is altered by it; standing by either end, one is forcibly struck with the greater volume and purity of light in this part, as compared with the other two divisions; indeed the pictures are scarcely to be recognized again, even by those who were formerly in the daily habit of regarding them; there is now no obscurity, no glare, none of that indistinctness or confusion of light which was formerly destructive of all unity of effect; all now is calm, lightsome, and distinct; the mind has leisure to drink in the full meaning of each work, undisturbed, as formerly, by the thousand drawbacks, which disposed one to pass on and forego the effort, rather than fatigue both eye and temper in the vain attempt to see.

I have recently returned from a tour on the continent, having, during the course of it, visited nearly all the most famous galleries of Italy; and I can safely say I have not seen one in which the lighting is not more or less deficient; in some, both arrangement and lighting must have been dictated by stupidity itself; everywhere in Italy one is disappointed and annoyed from this cause. How much we lose of the glorious frescoes that everywhere abound, from the universal obscurity in which they are enveloped; it is not too much to say that in nine cases out of ten the noblest works are "things not seen," but rather guessed at —half imagined—in fact, Mr. Ruskin's "Lamp at Sacrifice," or some equally obscure luminary, would seem to have been their guiding light; certainly light for human eyes can very rarely have been calculated upon. The churches of Italy at the present day, are the dark mouldering sepulchres of Art; perhaps I am digressing in alluding to them, but whether a noble work of Art exists in a gallery or a church, the evil is the same if it be sacrificed to continual gloom; and against this it is the duty of every artist to enter his protest. Who, for instance, can really be said to have *seen* our own greatest picture, Sebastiano's "Raising of Lazarus." placed in a so-called gallery? Who, on the other hand, has retained any adequate impresions of Titian's "Peter Martyr"—placed high up on a trumpery bedecked altar-exposed to the mildewing blights of a damp sea breeze from ever-opened portals; blackened and fumigated with filthy incense; lighted from above, beneath, around; from every quarter that can give an extra glare upon its surface! Such instances are, alas, innumerable; they are indeed, in the present state of universal ignorance, and apathy that attends this subject, rather the rule than the exception. There is one serious evil, too attending the ill-lighting of works of art, which is seldom taken into account —*obscurity is neglect.* "Out of sight out of mind:" hence deterioation and decay,—in the dark or crowded gallery; the dry arid surface, the damp and mildewed canvas, the opening pannel may crumble, split, and moulder, unobserved. In the dark church the intonaco may blister, scale and effloresce; ignorance and carelessness may deface, and blacken with impunity. Mr. Wilson has remarked upon the loss which statuary suffers from injudicious lightning; I would instance, if it were not too far trespassing upon your valuable space, the strange fate in this respect that has attended many of the finest works of Michael Angelo; and, to begin with those nearest home, it may not be generally known that there exists two of his very finest statues no further off than Paris: these are two of the Slaves, or Caryatidæ, executed for the moument of Julius II. I shall never forget the thrill of wonder and admiration with which I first saw these figures years ago; the more so as they come upon me with all the novelty of a discovery; they were, at that period, placed in an obscure apartment on the ground-floor of the Louvre, opened on Sundays, inaccessible to students, unknown to the majority of visitors, and lighted from a range of side-windows, whose confused and flickering lights effectually subdued all their wonderful *finesse* of surface into mere monotony. I am not aware whether this arrangement has been superseded; I should hope the absurd position has not escaped the intelligent notice of the new authorities. The remaining two of this series I have recently found out in the famous Boboli Gardens at Florence; dimly visible at the bottom of a hideous erection of stones, shells and trumpery, misnamed a grotto; moss-grown, battered, damp, half-imbedded in rough cast, and surrounded with a childish mosaic of pebbles and spars. In the Florence Gallery are his "Bacchus," "Adonis," and little "Apollo;" and in the same lost corner with these, for they all share the same fate, is Baccio Bandinelli's copy of the "Laocoon," Donatello's "St. John," and Sansovino's "Bacchus,"—all very notable works; they are placed together at the end of one of the long galleries, lighted by one window at the end, and a range of low side-lights, the effect being perfect nullity, conflicting shadows in some portions, a blank diffused half-shadow in others, whilst the discolorations of the marble, exaggerated in the uncertain light, effectually destroy all mass or *ensemble.* At the Palazzo Vecchio his group of "Victory" is lost to all intents and purposes in a demi-twilight. At the Accademia his half-finished "St. Matthew," is placed under an exterior arcade, in a continual shadow, except, perhaps, the lower part, which is sometimes cut across by brilliant sunlight. But in worse plight than these even, are his two famous "Pietàs," in the Duomo of Florence, and at St. Peter's in Rome; the former is placed behind the high altar, perhaps the very darkest place in this very dark church; there is no direct light of any kind upon it; all one can see of it, beyond its dark mass, being the tinsel trumpery with which they have bedizened the neck and bosom of the sorrowing Mother: at St. Peter's his well-known group is lifted up some twelve or fifteen feet above the eye, amidst a heap of glaring marbles and mosaics, impossible to be seen sufficiently near without complete and hopeless fore-shortening: in every case, the exquisitely modelled torso of the Christ is completely lost; whilst the light is that dreary dim diffusion, which blends flesh and drapery, muscle, bone, and tendon, deep cuttings and prominences, all in one monotonous uncertainty.

For both sculpture and painting, the importance of correct principles of lighting cannot be too much insisted upon; in continental churches there may be some excuse for shortcomings; but even there, architecture, painting, sculpture, and the ritual, are not incompatible; they might have been made to harmonize. In galleries, when originally constructed as such, there can be no excuse for deficient lighting; ignorance and imbecility only can be pleaded should any future failure in this respect occur in our own country. One word more upon our own national collection, and I shall have concluded my observations. I was particularly struck on my return recently, with the dingy dirty aspect of our national pictures as compared with those of foreign galleries; ditched with their daily dust, dulled with moisture, and blackened with foul air, in the crowded closets where they are now huddled together, they must be undergoing rapid deterioration. I would here suggest the great desirability of protecting all the smaller pictures with glass, as is already done in one or two instances; I was impressed with the utility of this when in Genoa, where the pictures in the numerous Palazzi are generally in an unusually good state of preservation; there glazing is almost universal for the smaller works, and silk curtains very frequently hang before the larger ones; the result being a freshness and purity of tone which I have no where else remarked. I hope what has already appeared in your valuable journal on the subject of lighting will stimulate others to take up the subject. J. C. Robinson.

For the Photographic and Fine Art Journal.

MR. PETER SLUMPKINS.

Philadelphia, March 30, 1857.

H. H. Snelling, Esq.—*Dear Sir :*—Inclosed you will find a true copy of a letter I received a short time since from a Mr. Peter Slumkins, of ——, who calls himself an artist, and feels himself very much slighted by you, and wants me to write his life. But not feeling competent I have referred him to you. I hope, if you have time, you will gratify Peter by writing his life, and thus retrieve your character with him. Peter complains bitterly of your neglect towards him. He writes that you don't even mention his name in your Journal. How is this? how can you be so cruel as to neglect such worthy subscribers. Read his letter and repent of all such sinful neglect.

Yours truly, M. P. Simons.

——, February 2nd, 1857.

Mr. M. P. Simons, Esq.—*Dear Sir :*—I takes the big Journal and never fail to read everything in it. I always read very carefully what the Editor says about the different and *indifferent* artists, and I've often thought strange that he never said anything about me. I am known by every man, woman and child in our village; they all call me the *derogatory dogtype* man, and how delighted they all would be to see my name printed in the Big Journal; why the very idea would make many of them walk more erect. I am afraid though that they will not soon be gratified in this way by our Editor; I suppose he is kept too busy to even write, "I have just seen some very fine artistical specimens of the art from the well-known studio of our highly esteemed, talented, and worthy friend, Peter Slumkins."

But you have'nt the same excuse, you have plenty of time, and I want you to write my life. I have read those in the big Journal, and I want mine written just like them; there are so many nice things said which is just what I want. Now I could have my life written down here in our village by our sheriff or our doctor; but just as like as not they would leave out some of the most important points in my my life, which would *shorten* it very considerably and make it a *grave* subject. I am satisfied that it will never do for me to trust my *life* in the *hands* of either the sheriff or the doctor. They both know me very well to be sure, but would never think of telling all the wonderful improvements I have made in the art, and if I must remind them of everything, I might as well write it myself. I positively dont believe—and I say it with all due respect to our doctor and our sheriff—that either of them would even think of giving an account of a picture I took of an old lady some time since. It was the most curious and really wonderful likeness you ever saw in all your days. It had two distinct sets of features just as perfect as could be; two mouths, two noses, four chins—her own chin being double—and four eyes. It was the talk of the whole village; folks came clean from the meeting-house to see it and talk about it. Town meetings were called to devise plans to get me to disclose the secret, that they might give it to the world—as the French did that of Daguerre's—but I never would name a price, and the matter dropt. Not long after this, I was trying to bring out the natural colors, and I positively came within one of getting them all in a picture of another old lady, but somehow or other I missed it. I must have hastened the operation too much; the sitting was only about 30 minutes—only just long enough to bring out the *blue*, which was the most perfect blue you ever saw. I even reproduced the pearly tears in her eyes, and, "how natural" every one exclaimed when they saw it. But why I did not succeed in getting all the other colors, I cannot tell. Though I think it must have been owing to my chemical at the time, which was either too weak or too strong. I intend soon to try the experiment over again. The chemical I use for this purpose, is a compound not known among chemists, and can only be made when the moon is full. Our sheriff—who is always good at *taking hold of things*—says I ought to take out a process to get a patent; but patents, you know, are so common now-a-days, that I prefer keeping it for my own use, until I have taken all in our village first. But if you have any smart men in your city, that you can spare for a few days, send a few down here and I will show them the Blue picture I speak of, and also the remarkable picture with two sets of features; and if they have any imagination, they can easily fancy how the Blue picture would look with all the natural colors, when I manage to get them.

Yours obediently,

PETER SLUMKINS.

P. S.—I will expect to see my life in the next Journal.

P. S.

From the Liverpool Photographic Journal.

MANCHESTER PHOTOGRAPHIC SOCIETY.

On the 4th instant this society held its usual monthly meeting, at the rooms of the Literary and Philosophical Society, George street.

At the meeting of the council, J. Sidebotham, Esq., presided; and after the usual formalities, a proof copy of Photographic Illustrations was approved, (this is expected to be in the hands of the members before the next meeting).

A resolution was adopted that notice be required from intending exhibitors at the evening meetings, that the Council might know exactly what business was before them.

Some further correspondence with Mr. Delamotte as to the Art Treasures Exhibition was produced, and the secretary was ordered to write to the Royal Society to request a copy of Secchi's photograph of the lunar crater Copernicus.

It was resolved to close the list of subscriptions to the Archer testimonial that evening, and transmit the amount to Mr. Archer.

It was proposed to hold a conversazione of the members and friends of the society in the summer, during the interval after the close of the session, but the subject was deferred for further consideration.

It was also resolved to request a paper on photographic printing from Dr. Frankland.

The secretary reported that a quarterly meeting of the Literary and Philosophical Society had approved of the permission granted to this society to meet in their rooms; and that the Liverpool Photographic Society has passed a resolution reciprocating the one adopted by this society at the last meeting, admitting members of other photographic societies to the meetings of this.

At the meeting of members Arthur Neild, Esq., presided; and Mr. Sidebotham read the following very interesting paper

"ON THE COLLODIO-ALBUMEN PROCESS,"

as used so successfully by him :—

At the request of some of the members of this society, I have prepared the following paper on the collodio-albumen process; I have little novelty to offer, having been largely indebted to the labors of others, but simply lay before you the formulæ, and mode of manipulation, in which I have been most successful, and which, in the hands of any one with ordinary care, is capable of producing the most beautiful results.

I need scarcely remark on the great value of a glass process, by which the plates can be prepared before an excursion, the views taken in the camera at any time during the space of several weeks, and the pictures developed on the return home, thus dispensing with all chemicals, tents, and bottles, and requiring only the camera and stand, and a plate box, with some convenient mode of changing the plates.

The albumen process possesses these advantages, but requires such a long exposure in the camera that, for landscapes where figures are introduced, it is quite useless; and the modes of preserving the collodion plates with deliquescent salts, and with honey, oxymel, or glycerine, have all one great disadvantage, the liability to collect dust in changing from the plate box to the dark frame.

The gelatine and dextrine processes are well spoken of by their adherents, but in my hands they have not been so rapid in action or certain in results as the collodio-albumen.

The discovery of this process is usually attributed to the late Dr. Taupenot. I do not know exactly when he first published the results of his experiments, but would refer you to page 47 of the *Photographic Journal* for 1854, to a letter from the Rev. William Law, dated Sept. 29th in that year, where the principle of the collodio-albumen process is clearly laid down, and ask whether, if he be not the originator of this process, he might not with justice claim its independent discovery ?

In this process we have eight distinct operations to obtain the negative.

1. Cleaning the plate.
2. Coating with collodion.
3. Sensitizing the collodion film—washing the plate.
4. Coating with albumen.
5. Sensitizing the albumen film and washing it.
6. Exposure in the camera.
7. Developing the picture.
8. Fixing.

This appears a formidable list, but it is more in appearance than reality. I will take the operations in the order above.

1.—CLEANING THE PLATE.

This is best done with a little nitric acid, well rubbed over, and then washed with plenty of clean water, dried with one soft linen cloth and polished with another; many plates when new require nothing but water, but it is best always to use the acid, to be quite safe. I have never found the necessity for the elaborate cleaning some persons advocate. The glasses should be cleaned and stored in a dry plate box, and just before they are used should be polished with a dry, warm, linen cloth.

2.—COATING WITH COLLODION.

This is done in the ordinary manner.

3.—SENSITIZING THE COLLODION FILM—WASHING IT.

The plate, after coating, is plunged into a bath of aceto-nitrate of silver, in proportion—

Water	1 ounce.
Nitrate of silver	40 grains.
Glacial acetic acid	30 minims.

As this bath is rather strong, it should be saturated with io-

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dide of silver, or the plate may not be evenly coated. When ready take it from the dipper and plunge it into a bath of distilled water, move it up and down a short time to wash off the silver, and then transfer it to a second bath, and perform the same operation; then take it out and rear it up to drain, with its corner on blotting paper; in about a minute it will be ready for the next operation.

The above no doubt appears a tedious process, and for a single plate it would be so, but in preparing a number of plates it is not the case; thus when plate No. 1 is taken out of the silver bath and put in water, whilst it remains there No. 2 is coated and put in the silver bath, by this time No. 1 is ready to be moved about a little and changed into the second bath; No. 2 is now ready to change from the silver bath to the water; this done, No. 3 is coated. No. 1 is now ready to take out and drain, then No. 2 to change into the second water bath and wash; No. 1 is now ready to coat with albumen, and so on; once begin the series in proper order, the plates may be prepared with great ease and rapidity, and no time be lost in waiting.

We now come to the next operation.

4.—COATING THE PLATE WITH ALBUMEN.

Having tried most of the published formulæ for the preparation of the albumen, and many experiments with different proportion of iodides and bromides, I have fixed upon the following as answering the best. It is taken, with slight alteration, from the *Photographic Journal* for August, 1856, from the letter of a correspondent who signs E. F. To his paper, and to that of Mr. Ackland, in the same journal, I would refer; they have been of the greatest use to me, and will be to any one pursuing this process.

Albumen	1 ounce.
Distilled water	¼ "
Liquor ammoniæ	10 minims.
Iodide of potassium	5 grains.
Bromide of potassium	1 "
Solution of iodine, 5 gr. iodine to 1 oz. water	2 minims.

Dissolve the iodide and bromide in the water, then add the ammonia and iodine, put this into a basin with the albumen; and beat it well up to a froth with a silver fork; let it stand a little and then filter through fine calico, and put it into a bottle with a small piece of camphor: a large quantity may be made at once as it keeps very well; some I made early in September is as good as ever: sometimes the albumen becomes muddy, and throws down a white precipitate, it is however no worse, if poured off carefully and filtered. We will now suppose the collodion plate to have drained a minute, some of the prepared albumen is poured from a beaker glass on the centre of the plate, run twice round the edges, and poured off again into another beaker, through a funnel containing a piece of fine calico; this calico should be carefully bleached, and each side well singed several times to take off all the lint.

The plate must now be reared up on a shelf, with its face to the wall, and its corner resting upon a piece of blotting paper; it will thus dry perfectly even, without any artificial heat, in the course of few hours.

After the albumen is put upon the plate it may be exposed to the light without fear: I have exposed some plates to the full light of the sun, and kept others, prepared at the same time, entirely in the dark, without being able to perceive any difference in the finished negatives.

For the sake of convenience I usually prepare a number of plates at a time, and keep them in this state ready for the fifth operation, viz., sensitizing the albumen film. I cannot from my own experience speak of the length of time the plates will remain good; I have kept some a little more than two months without the least perceptible change, and I do not see why they should not keep much longer if kept perfectly dry.

5.—SENSITIZING THE ALBUMEN FILM AND WASHING IT.

Dip the plate for about half a minute in the same aceto-nitrate bath which has been used for the collodion, then change it into the water bath, and afterwards *well* wash it under a tap: let the water come in as strong a stream as the film will bear, all over the plate, then give an extra wash to the edges; you cannot wash it too much if you do not injure the film, and most beginners fail in this part of the process more than any other. The plate must now be dried as before by rearing up on a shelf upon blotting paper; if required soon it may be dried at a stove or fire, but I prefer if possible to allow it to dry spontaneously. When thoroughly dry put the plates in boxes ready for use, carefully excluded from light. As to the keeping qualites of plates thus prepared, I will only speak of my own experience. I have just used some plates made sensitive six weeks ago, they were quite as good and as sensitive as freshly prepared ones, and would probably have kept much longer.

6.—THE EXPOSURE IN THE CAMERA.

The only data I can give with certainty are from the use of a stereoscopic camera, lenses 5 inches focal length, and an aperture of 3-16th of an inch. In the winter, with snow scenes and bright weather, I gave two to three minutes exposure in the morning; with no snow, but bright sun, three to five minutes; and in Paris, early in February, with a bright sun, I gave from one to two-and-a-half minutes, according to the subject. Negatives and prints from many of these are on the table, showing that the exposure has been sufficient.

I may mention that, as a comparison with the albumen process, I one day, in Paris, met with a French photographer taking stereoscopic pictures; his lens was about 4½ inches focus, and nearly half an inch aperture, and he was giving seven minutes exposure, which was more than ten times longer than mine, considering the larger aperture he was using.

The longest time I have kept a plate between exposure in the camera and development is eighteen days. A series of carefully conducted experiments as to the longest time a latent image could be thus preserved, would be extremely valuable and interesting.

7.—THE DEVELOPMENT.

This operation is one which requires great care and attention. I can now see that I have lost many good negatives from not knowing how to humor them during this process.

Prepare the following solutions:—

Distilled water	20 ounces.
Gallic acid	1 dram.
Pyro-gallic acid	10 grains.
Glacial acetic acid	½ dram.
Alcohol	½ "

Dissolve and filter.

Silver Solution.

Distilled water	20 ounces.
Nitrate of silver	30 grains.

To develope, pour into a clean glass dish sufficient of the gallic acid solution to fill it to the depth of nearly half an inch, then put the plate into it, face upwards, and agitate the dish a little, so as to bring fresh solution in contact with the surface; in about five minutes add half an ounce of the silver solution, and again agitate the dish to mix it well; the picture will now very soon begin to appear, if it does not do so in three or four minutes add a little more of the solution: it is here that great care is required; if the plates have been exposed sufficiently *very little* silver is required, too much would cause the image to develope so rapidly all over, that before the sky and intense blacks were deep enough, the half tones would be overdone. A little practice will regulate this, but no amount of description can; the safe plan is to begin with a very small amount of silver, and add more if required. Develope until the negative is strong, as it loses a little in the fixing.

8.—FIXING.

This operation is very simple, put the plate into a dish of hyposulphite of soda, about 1 oz. to a pint of water, leave it until the blue film disappears, and then wash well in clean water, and rear up to dry.

The above is the whole process; but I have still a few remarks to make,—and first with reference to the collodion. Almost any description of collodion will give a picture, but to produce fine negatives the following qualities are requisite; freedom from structure—that it should contain very little water, and rather a smaller proportion of alcohol than is usual—and that it contain free iodine, 10 or 12 drops of tincture of iodine to the ounce is not too much. Mr. Ackland recommends 1 drop of glycerine to the ounce, and in some specimens of collodion I have found this a great improvement.

In preparing plates for printing upon to make the transparent stereoscopic slides, there is no occasion to render the collodion film sensitive, but instead of the nitrate bath, dip the collodionized plates into a bath of water, and proceed as before. They require from ten to twenty seconds exposure in the printing frame with ordinary day light, or about half an hour with the light from a moderator lamp.

For the purpose of printing upon, old collodion which has become useless for other purposes answers very well, and generally gives a beautiful opalescent appearance, which does not alter in the hypo. bath, and answers the purpose of a ground glass; as specimens on the table will illustrate.

The two great sources of annoyance in this process are—blistered plates, and marbling and spotting in the development: the latter is due entirely either to dirty dishes, or dirty solutions, and the remedy is obvious; the other may proceed from several causes—one is from the plates being damp before the collodion is poured on; another is from having a collodion too thick, or too contractile, causing a different expansion of the albumen and collodion when put in the nitrate bath; another is from having too much acetic acid in the bath, or in the developing solution. With a little care all these may be avoided; and even when the plate has been covered with blisters, with care in the development not to allow the solution to become dirty, the blisters will all disappear when the plate is dry, and leave no marks perceptible by transmitted light.

This process, even in its present state, is highly satisfactory, but, I am convinced that ere long we shall have it much simplified. Experiments are being made in the right direction, which will, I think, result in the reduction of the time and trouble of the preparation of the plates, by at least one half, besides having other advantages.

I cannot conclude without returning thanks to my friend Mr. Neild, and one or two others of our members, who have worked with me in this process, and rendered assistance when any difficulty presented itself.

Mr. Sidebotham exhibited some very beautiful pictures, taken by him in Paris a few weeks ago, and illustrated his paper by preparing a plate, and developing a picture on a plate which had been prepared six weeks, and exposed last Saturday.

A conversation followed as to the propriety of leaving any traces of free nitrate of silver in the plates; the practice being to remove the same as far as possible.

A camera for pictures 10 by 8 inches was exhibited, made by Mr. Dancer, and having the same arrangements for dry collodion plates as in his patent stereoscopic camera; except that the camera is not attached to the dark box, the plates being removed from the one to the other by a dark slide.

Mr. Payne also exhibited a stereoscopic camera of a very portable and convenient form, with an exceedingly light tripod strand.

Mr. A. Brothers brought some very beautiful photographs, which had been lent him, of the Falls of Niagara, and a very curious Indian photograph, collodion on canvas, apparently a transfer.

The usual complimentary vote to the chairman having been passed, the members separated after an exceedingly pleasant meeting.

NOTICE TO SUBSCRIBERS.

We are sending the balance of the photographs for 1856, with the title page and index as fast as we can send them. The sooner our subscribers will let us know what pictures are due them, the sooner they will get them.

From the Liverpool Photographic Journal.

NEW PRESERVATIVE PROCESS.*

BY F. MAXWELL LYTE, ESQ.

It is a well-known property of gelatine, that when it is dissolved in hot water, allowed to gelatinize, melted, and again cooled, and this process repeated many times in succession, the jelly, at first stiff, gradually loses its tenacity, until at length it no longer sets, but remains liquid even when cool. The cause of this is a gradual change, which comes over the gelatine itself, by which it would ultimately become converted into a new substance, white and crystalline, called by chemists glycocine or glycocoll: but the fact is, that before the formation of this substance, the gelatine undergoes previous changes, and it will be found to have lost nearly all gelatinizing properties before an appreciable amount of glycocoll has been formed. The change which takes place is not yet thoroughly understood, and well merits further research; it is, perhaps, similar to that which takes place in pectin the gelatinizing principle contained in fruits, which by boiling becomes converted into parapectin, and by boiling with acids into metapectin. The only difference is, that in the case of gelatine, acids seems only to accelerate without changing the nature of the alteration produced by simple ebulition; whereas from pectin two substances, having different chemical properties, are produced.

I propose, then (for want of a better name), to call the gelatine in its altered condition, metagelatin, on account of the similarity of the change to that produced by the treatment above mentioned of pectin. It has all the properties requisite to form a perfect varnish for the preservation of the collodion plate in the dry state, and in this respect seems far to excel albumen, gelatine, honey, or any other agent which has yet been proposed. It possesses sufficient fluidity, is unacted on by nitrate of silver in the dark, is soluble in water, dries into a transparent film, without cracking, does not retard the sensibility, and, when softened with a little honey, supports the action of the developer without the least tendency to blistering. The change, however, by simple boiling, which is at best imperfect, may be rendered far more sure and rapid by the presence of a strong mineral acid, as the sulphuric for instance. The following is an outline of the method I employ:—

Take 1½ oz. of pure white gelatine and dissolve it in 10 ozs. by measure of boiling water, in a porcelain capsule when thoroughly dissolved, add to it 60 minims of strong sulphuric acid, which has been previously diluted with 2½ ozs. by measure of distilled water; boil for five minutes, then remove the capsule from the fire, and allow the liquid to cool completely. Then heat it up again to boiling for five minutes, and again let it cool; this time it will most probably not gelatinize, but should it do so, another warming-up and subsequent cooling will be sure to bring it to the necessary condition. When the liquid no longer sets on cooling, the acid must be neutralized by the addition of powdered chalk or whiting, till effervescence no longer takes place; and the sulphate of lime thus formed is to be removed from the liquid by squeezing it through a piece of fine linen. In order to prevent all danger of blistering during development, which might ensue from using this solution of metagelatin alone, I find it more convenient, according to the method of M. Taupenot, to combine it with an organic deliquescent substance, such as, for instance, honey or glucose, or indeed any of the other substances which have been proposed for preserving plates in the moist state since the introduction of honey. Honey, however, seems to answer so perfectly, that I am inclined to adopt and recommend it in preference to any other.

The following are the proportions in which I combine the syrup:—

Solution of metagelatin	5 ozs. by measure.
Fine honey	2 drs. by weight.
Distilled water	5 ozs. by measure.

When the plate is withdrawn from the nitrate bath, it is to be held for a moment with the corner resting on a piece of blotting-paper; it is then to be held horizontally and a portion of the syrup to be poured on at one of the upper angles, and flooded carefully from there to the opposite angle, in a similar manner to that by which the plate has been previously coated with the collodion. This portion of syrup is to be thrown away as it runs off the plate, and it will have carried off and driven before it a considerable portion of the nitrate of silver, still leaving behind a sufficient excess to retain the sensibility. Another portion of syrup is now to be poured on, and this poured off and on several successive times till it takes evenly over the whole surface The plate is now to be stored away in the dark box to dry, and it will perfectly retain all its sensibility for many days, or even, in cool weather, for weeks.

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* *Photographic & Fine Art Journal*, March pp. 90, 91.

To develope, all that is necessary is, to dip the plate into cold distilled water, or cover it for a minute with water, so as to wet the surface completely and evenly. The picture is now to be developed as usual, with the ordinary pyrogallic acid solution, and fixed with a solution of cyanide of potassium. If the negative, when finished is not found to possess the requisite vigor, a circumstance which is liable to occur in cold weather, it may be strengthened by pouring over it a solution of gallic acid to which has been added a little of the nitrate-bath.

In publishing this process, I desire it to be understood that I by no means wish to claim being the first to apply gelatine for the preservation of the collodion plate in the dry state, but rather the application of the gelatine in its changed state.

Since writing this process for publication, I have just produced a perfect and spotless negative on a plate which had been kept six weeks.

I can hardly yet fix a time for the exposure of these dry plates, but from my present experience I should be inclined to say about one-half longer than with the ordinary moist process. The unusually cold weather we have at present may, however, have some effect in retarding the action.

With regard to the correspondence between J. S. and myself on the subject of the honey process, I feel it sufficient to say in reply, that any reader of it will find that he inadvertently, at its very commencement, admits the very point for which I contend, viz that I was first to apply honey to the collodion plate, obtaining thereby a retention of sensibility for "a few hours," an effect never before attained except by the nitrate of magnesia process of Messrs. Crookes and Spiller. And if by the same means I was enabled to retain an exalted sensibility, is this any proof against my point? True that Mr. Shadbolt has by removing a portion of the nitrate of silver, prolonged the period over which the plate may be preserved without spoiling; but as in reality the preservation for a few hours is of at least as much importance as preservation for days, and considering the defects arising from dust and other causes in long-preserved plates, it seems to me preferable to abandon the idea of a moist process where long preservation is concerned, and to seek for a good dry one, such as the one I have above detailed, using my own old honey process for work nearer home, and where an exalted sensibility is especially aimed at.

Personal & Art Intelligence.

— The introduction of the Hallotype to the photographic community, has developed, prominently, one of those phases of character in the body of photographic artists, which finds its analogy in a flock of sheep, or a pen full of the swine species. This remark may be anything but flattery—and may be severe —but who can criticise justly and not be, at times, more or less harsh. Severe as it may be we think we can prove its truth, by giving a brief history of the Hallotype and kindred subjects. First, we will premise that all understand the allusion. We take it for granted that all are aware of the fact, that a flock of sheep always follows the bell-wether wherever he may lead; and that when you feed a drove of pigs upon hot swill, no matter how severely the first that sticks his nose in is burned, and how loud an outcry he makes in consequence, all the rest of his companions will, in succession, essay the same experiment and meet the same consequences. In applying the simile between these facts in nature, and the action of our photographic artists in regard to the Hallotype, we shall probably disappoint some of our readers. "At first blush," they may think we intend to show that those who have purchased Mr. Hall's improvement have burned their fingers, and that all will blindly follow in their wake and get burned also—but we intend to do no such thing. Our application may be mathematically termed an application inverse so far as regards the Hallotype, but direct as regards other processes heretofore published and set forth in our *Journal.* Nearly three years ago, viz. October 1854, we published in the columns of this *Journal* a process, by one Minotto, for coloring photographic pictures. This process, so far as it went, was a good one and capable of application by almost any one. Little or no notice was taken of this process by any of our readers; but one who was constantly on the watch for new things appropriated it to his own use, advertised it in circulars, as his own invention, and found many among the readers of photographic Journals, as well as among those who "know too much to waste their money on book larning," green enough to pay twenty-five dollars (five years subscription to our *Journal)* for the receipt. Here was "wisdom as was wisdom"—here was the hot swill and the drove of swine. This individual was for a long time the bell-wether followed by the flock of "knowing" sheep photographic. In the meantime, the original improver of the "old German process" of coloring by transparency, Minotto, was never thought of or consulted. The many swine who purchased the "new chromatint" process, worked at it awhile and at last feeling convinced that they had burnt their fingers, concluded to wait for the swill to cool before touching it again. But unlike the pig they returned no more to that trough, having forgotten all about it by the time it was thoroughly cool; and again like them were ready to be burned by another supply like unto the first. Not one among the whole drove seemed capable of grasping the idea of Minotto in all its extent, and producing the promised effects. It is true, attempts were made by several to improve the process for coloring by transparency; but all signally failed. Up to the time of the introduction of the Hallotype, the attempts of Mr. C. A. Seely of New York, and Mr. Willoughby of Mansfield, Ohio, were the only processes that seemed to bid fair to ultimate success. Of these, Mr. Seely has made the nearest approach to the Hallotype, and we have no doubt that had he been as good an artist as he is chemist, he would have succeeded. His process had all the elements of success. While the "chromatint" process was taking the affections of the "knowing ones," and at the same time their money, while Mr. Seely and Mr. Willoughby were endeavoring to reduce their theories to practice, Mr. Hall—as it appears from sufficient evidence before us—was also delving into the hidden recesses of photographic coloring. He may have based his experiments upon the published process of Minotto or not—the idea may have been introduced to his mind by it—but that is of little consequence, for that the effects produced are different, none will deny who try both methods. After much delay—to our mind quite unnecessary—Mr. Hall publicly produces specimens of his invention and offers his secret or improvement, to the photographic public. All look upon them and admire—they desire to purchase the process—but staggered by the prices charged for the right to practice the process, they cast themselves about for the means to evade the patent and produce similar pictures without being obliged to remunerate the man, who, by patient industry, had fully developed the principle, and introduced it to the favorable notice of the public, and they all at once discover that a process published years ago, and until now wholly neglected by them, is precisely the same thing, and open to them without fee or without price. If in reality there is no difference between Mr. Minotto's and Mr. Hall's processes, does it not strike our readers as a disgrace to the whole community of photographers throughout this country and Europe, that it had not been put into general practice months ago? Is it not equally disgraceful to seek to rob the only man who has made the attempt to so improve a principle—admitting for a moment that the principle was not original with him—and fully succeeded, of the fruits of his labors?

Notwithstanding we think that he split upon the rock against which most inventors dash all their hopes—when he disregarded our advice—we still think he is entitled to some adequate remuneration for his labors, and this remuneration should be accorded by his photographic brethren. While we disagree with him in the method of securing that remuneration, we are perfectly free to censure those who seek to evade his rights upon a mere technicality. We, however, do not deny the right of all—who will—to use the Minotto process, but we trust that in doing so honor will prompt them to adhere strictly to that method as laid down by the inventor. The lesson we wish to inculcate in this connection is this,—that in photography—as well as in every other branch of science and art—which is strictly progressive, no new formulæ or process that may be published, is unworthy of the most careful scrutiny, and that it is impossible for any photographer to adopt any particular formula and pursue it exclusively, with certainty of improvement. Every day develops new and improved phases in the art, and the most careful study is requisite to keep pace with these developments. It is this very principle that induces us to hope for the ultimate success of photography as an *Art*—for strictly speaking it can now be termed only a science. We cannot expect all who are now embraced in its practice, to have the ability—either pecuniarily or in mind—to keep pace with the rapid changes constantly undergoing in photography; it is, therefore, these changes that will effectually sift the chaff from the grain, and give to photography that prestage of art, which all who have any regard for it, more than the mere consideration of dollars and cents, must heartily desire. A minute history of Photography in this country would fully prove the correctness of the principles of action, on the part of our photographers, which we have herein endeavored to illustrate, and there are few true lovers of the art who will not acknowledge the picture.

Charleston, April 12, 1857.

Mr. H. H. Snelling, —*Dear Sir :* My curiosity about the Hallotype is at last satisfied. Soon after I received the last number of the *Journal*, I set to work and made an experiment, in which I succeeded admirably, even so that Mr. George S. Cook, who has seen specimens at Mr. Gurney's Gallery, declared it to be equal to those he had seen. I must declare, when I first saw the article I felt somewhat disappointed, as I expected after all that has been before said about the Hallotype, an improvement in the chemical process, something never heard of, and was not prepared to find it to be nothing more than the Application of Grecian painting or Oriental painting, as we term it in Europe, to Photography. Every body will and must admit that fine effects can be produced in this way, by any good artist painter, but in the hands of the common photographic operator, the process is useless and out of the question; but there are some great drawbacks—the double outlines, and the blacks in the shadows which are so heavy; the last might be overcome by a little more experience. In the specification published in the *Journal*, the use of oil and copal varnish is spoken of, but by my experience in oil painting, I advise every body not to use any of it, as these substances used for transparencies turn orange and brown; this is not injurious by artificial light, but by day light it is *very* bad. Gum demar dissolved in spirits of turpentine answers admirably; it dries very fast and keeps perfectly transparent.

In a few days I will send you a proof of a new invention which resembles etchings and engravings on steel, more than any thing yet produced by photography.

I hope you received the box with the four negatives I sent you ten or fourteen days ago. [We did.—Ed.]

I learned by the last number of the *Journal*, that porcelain nitrate of silver baths are introduced in the New York market; it is just the thing I so ardently longed for, and if I do not ask too great a favor, you would oblige me very much if you would tell Mr. Anthony to send me one and dipper, for extra whole size plates, by the next express.

Very respectfully yours,
F. A. Wenderoth.

— A. M'Donald.—The portrait you send us is a very pleasing one, as well as very excellent in tone and finish. The head is very fine—the lights and shades being beautifully blended. A lighter background would have suited the peculiarities of the bust much better. The accessories of a picture require as careful study as the principal object, and should be made to harmonize with it. As an "un-touched" picture, this will bear comparison with the works of our best Eastern photographers.

— M. P. Simons.—This gentleman will shortly publish a book on coloring photographic pictures—a work much needed by our photographers. It is confidently expected that with the aid of this book, every photographer will soon learn to color their own photographs with a skill they have heretofore been unable to attain. We understand that the principles laid down in the work, have been approved by the celebrated painter, Sully, to whom it is dedicated. At all events the reputation of Mr. Simons is sufficient evidence that we shall have something good in this little volume.

— E. Long.—The photographs you sent us arrived safe. We are glad to see that some of our photographers are disposed to leave the beaten track, and essay their hands at composition. These pictures are very good, and show rapid progress in improvement over the first you sent us. Why not send us a pair of negatives for the *Journal*, in the same happy vein ?

— Mr. F. D. B. Richards has presented us with three exceedingly fine photographs, which will compare favorably with the best of European pictures. We have also been favored, by him, with a copy of his "Tour in Europe," which we have not yet had time to read, but which we will notice in our next.

— Messrs. Fowler & Wells have sent us "*A Manual of Composition and Letter Writing*," which may be truthfully termed a complete instructor in the art of which it treats. Those who seek instruction in this branch of education, could not rely on a better work. Fifty-cents enclosed to the publishers, No. 308 Broadway, will secure the work by return mail.

— New Photographic Patents.—To J. F. Mascher of Philadelphia; for an *Improved Process for Ornamenting Daguerreotype cases, &c.* Claim: "The process for ornamenting daguerreotype cases, or other articles in imitation of tortoise shell, wood, marble, or other substances, by first covering the surface thereof with stained or colored paper of suitable character, or staining, or coloring the surfaces themselves in a suitable manner, and afterwards coating them with gelatine and bi-chromate of potash."

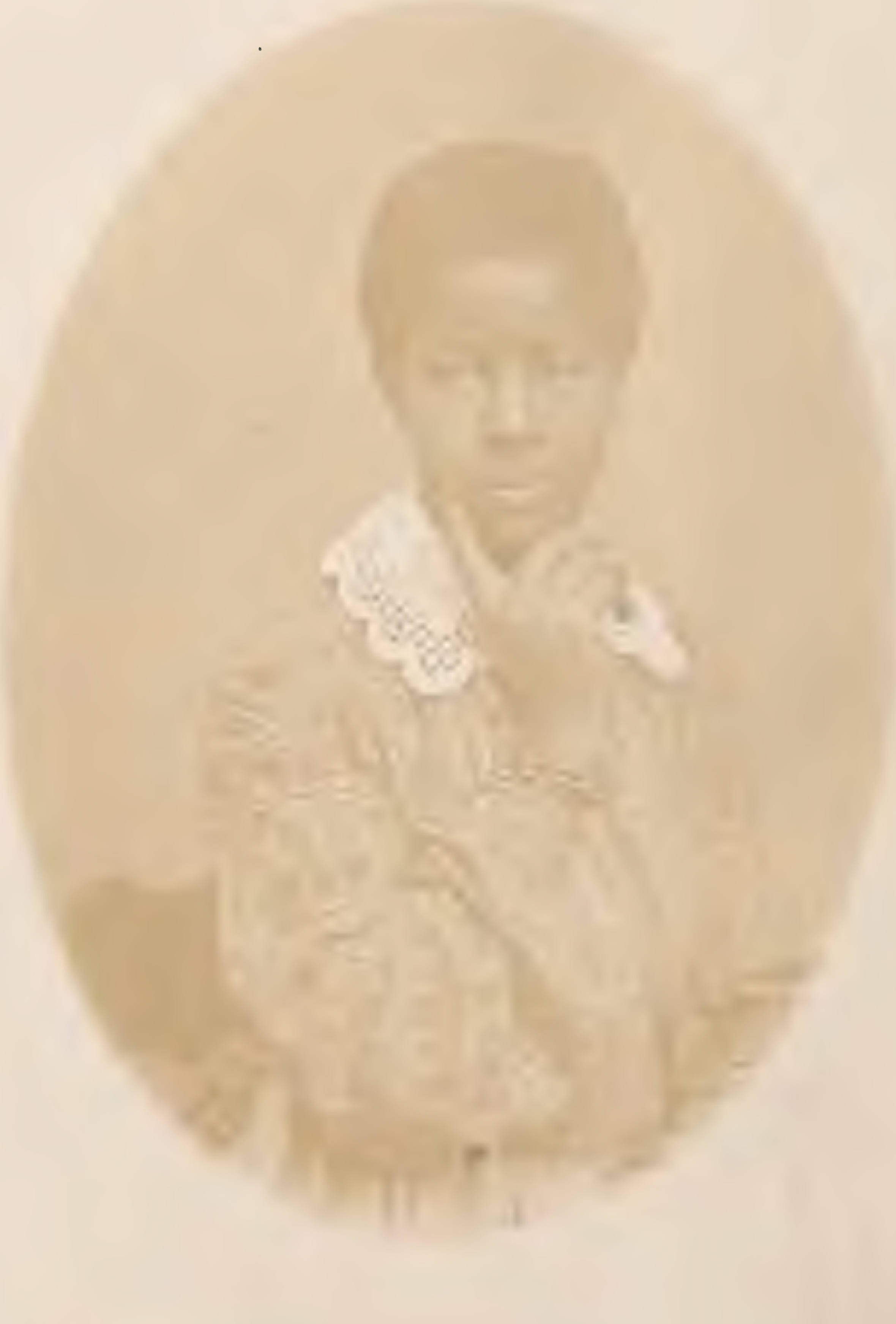
For *Photographic Camera Box;* Luzerne M. Bolles & Washington G. Smith, Cooperstown, N. Y. Claim : "1st. A swing, with ground glass permanently attached. 2d. The arrangement of the baths in the camera box to correspond with the operations of the plate-holder, through the mortice and grooves."

For a *Photographic Glass Holder* ; Joseph Longking, Township of New Windsor, N. Y. Claim: "A *photographic* holder, composed of antimony, tin, and lead, alloyed in the proportions set forth."

For a *Solar Camera;* David A. Woodward, Baltimore, Md. Claim : "Adapting to the camera obscura a lens and reflector, in rear of the object-glass, in such a manner that it is made to answer the two-fold purpose of a camera obscura and camera lucida."

For an *Improved Photographic Plate-holder ;* W. & W. H. Lewis, city of New York. Claim: "1st. Constructing the hollow base and hub of the cap-plate in such a manner as to receive the friction spring, screw, and cap, for regulating the power with which said plates are clamped together. 2d. Regulating the force with which the spring tends to clamp any glass or holder between the jaws, and by means of the set screw. 3d. The beveled adjustable bars on the jaws, to support the glasses, plates, or holders, with their upper surfaces at the desired height above the upper edge of the said jaws."

— R. Shriver.—Our amateur photographers appear to be making the most rapid strides in photographic landscape pictures. The specimen you have sent us evinces taste and talent, and you only require practice to place you in a high position as a photographer.



PORTRAIT OF A NEGRESS.

Negative by F. A. Wenderoth.

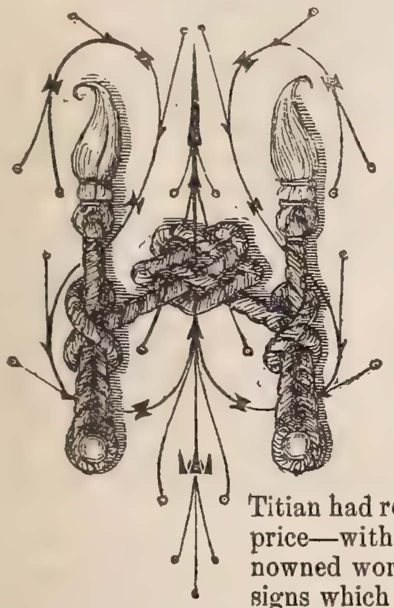
From the London Art Journal.

TALK OF PICTURES AND THE PAINTERS.*

BY AN OLD TRAVELLER.

CHAPTER IV.

Last moments of Titian—His Disciples—Santo Zago—Girolamo Dante—Andrea Schiavone—Battista Zelotti—Domenico Campagnola—Lament for Giorgione—Jacopo Robusti—Paris Bordone—His Works and Character—Relative value of Authorities—A Word for an Old Friend—Return to Tintoretto—Mode of Study—A former Acquaintance—Of certain Works within reach—Galleries abroad—Venice—San Giorgio Maggiore—Martyrdom of St. Stephen.



How deplorable above all beside is the description of Titian's dying moments. Struck by the plague, then devastating the city, he lay breathing his last sighs, when a body of impious ruffians, rendered bold by impunity and by the dispersion of the magistrates, who were flying in their dread of that fearful pestilence, burst into his chamber, all unwatched by friend or servant, and carried off—not jewels and rich furniture only, but even those pictures so highly valued that Titian had refused to part with them at any price—with the studies of his most renowned works, and those more recent designs which the master regarded as among the best of his productions! and thus mournfully died one so long the favorite of fortune! not even a menial to close his eyes—dread of contagion had caused all to take flight, and the master was left to expire alone.

The disciples of Titian were not so numerous as might reasonably be expected, the great reputation and long life of the master considered. Santo Zago, of whose frescoes the authorities speak in high terms; and Girolamo Dante, called Girolamo da Tiziano, who is said to have been his favorite, were among them; as was also Andrea Schiavone, his laborious life passed drearily, and his genius crushed beneath grim "Poverty's unconquerable bar;" with Battista Zelotti (but these for a short time only), the latter an excellent painter in fresco, whose works have sometimes been attributed to Paolo Veronese: Domenico Campagnola, equal to Santo Zago in fresco-painting, and superior, as says Ridolfi, to most painters in landscape, may close the list. Of Compagnola, Titian is said to have become early jealous, an infirmity by which he was unhappily much afflicted: the truth may not be denied, however much regretted. "It might," indeed, be wished, as says Fuseli, that "the mean jealousy, and its meaner consequences, were less authenticated."

That this deplorable defect—wholly incompatible with the character of the artist in its highest development—was eminently displayed in the case of one whom it might else have been his glory to have formed to Art's noblest uses, can never be forgotten. The reader will perceive that this can apply to none but Tintoretto, and it is of him we speak. Now, remembering that force of will by which Tintoretto was subsequently distinguished, it would doubtless be easy to imagine other causes for his expulsion from the school of Titian, than the "paltry meanness" and "bad passions" angrily attributed to the latter by hosts of our English writers; but we have the assertion of Ridolfi—all but a contemporary—to show the common belief of his time. I write from memory only, not having Ridolfi's work at hand, but remember well his declaration to the effect, that Tintoretto had been but a very short time in the school of Titian, when the latter, after examining certain studies made by him—the spirit and beauty of which were the admiration of the school, and could not be disputed—called one of the elder of his disciples—I think Girolamo Dante—and, inquiring by whom the drawings before him had been executed, then commanded the young Jacopo Robusti—the name, as our readers will remember, of him whose by-name of Tintoretto has since been and now is one of the greatest in Art—to depart instantly from the school. This is lamentable, and goes far to justify the reproaches that have been heaped on the delinquent master: the offence cannot be palliated; but let us remember that on subsequent occasions Titian was more generous in his conduct towards Robusti—a fact named thus incidentally only because want of space prevents a more extended reference. Let us remember also that the homage paid to an unfinished work of Titian's, after his death, by the younger Palma, had long before been offered by Titian himself to one left unfinished by Giovanni Bellino. Palma writes—"What Titian commenced was reverently completed by Palma." But something of the same kind had been previously done by Titian, who had at least appended the signature of his master, when he might have affixed his name. That Tintoretto was unhandsomely expelled is beyond question: it would, nevertheless be fair to suppose that some flagrant departure from rules laid down by the master—a most probable circumstance, the firm yet not obstinate character of our Jacopo considered—may rather have been the cause, and that no fears of the future rival were in the case. But there is a second charge against Titian, that of unwillingness to impart his knowledge even to the best of his disciples; and from this it will be difficult to defend him—the instances are too numerous to be explained away: one only shall be cited, but it is conclusive.

Well-born,—well in the best sense, and admirably trained, a necessary consequence of the true "well-born,"—endowed with extraordinary ability, and above all imbued with a profound love for the painter's art, Paris Bordone, after the careful education suited to his rank, was placed in the school of Titian. It is not easy to believe that a youth of so much promise could fail to be the delight of his master; and if the love of Art had been pure in the heart of the latter, so he must have been: but see what follows:—

He—Paris—"Andò a stare con Tiziano, ma non vi consumò molti anni, perciocchè vedendo quell' uomo non esser molto vago d'insegnare a' suoi giovani, anco pregato da loro sommamente, ed invitato con la pacienza a portarsi bene, si resolvè a partirsi, dolendosi infinitamente che di que' giorni fusse morto Giorgione, la cui maniera gli piaceva sommamente, *ma molto piu l' aver fama di bene e volentieri insegnare con amore quello che sapeva.*"† I pray you mark me that last, good friends!—Giorgione taught all who desired to learn from him, and that "with love and care." Without doubt he did, and so will ever the true master in Art, worthy of his name. The earnest desire to learn of that excellent Bordone—of whose character we are enabled to form a well-founded opinion, and that of the highest, from the details of his life—would have been his best claim on the attention of Giorgione; other qualities would have won the affection of the admirable master; and good reason had Bordone for "grieving excessively" that Giorgione was dead in those days."

Works by Paris Bordone will be found in the Louvre, at Berlin, Dresden, and Munich; other galleries also possess them, but these are first named, as being—after those in our own country—most easily accessible to the English student. In the Dudley Collection is a painting respecting which there is doubt as to whether Titian or Bordone be the master, but Dr.

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* Continued from page 101, vol. x. No. iv.

† He was placed with Titian, but did not continue many years with that master, whom he perceived to have but little pleasure in teaching his disciples, even when earnestly entreated to give them aid, and encouraged to do so by their patience and good conduct. He departed, therefore, grieving much that Giorgione was no longer living, the manner of the latter pleasing him greatly, but more the reputation he had of instructing all who desired to learn of him, affectionately and with great care. See "Opere di Giorgio Vasari," vol. v. p. 216. [Florentine Edition of 1823.] Or the English reader may consult Mrs. Foster's translation, vol. v. p. 403.

Waagen assigns it to the latter. It represents a woman receiving her clothing from two attendants. The Royal Institution of Edinburgh has a "Lady at her Toilet," not considered by good judges to be among the better works of the artist, but named here as within easy reach of our own students. Mr. M'Lellan of Glasgow is also in possession of a work by Paris Bordone, not known to the present writer; the subject is Our Lady with the infant Christ and St. George; the Mgdalen is also present with St. John, who points to the lamb. "A good picture of his earlier time," says Dr. Waagen, "in which an earnest and religious feeling prevails. In this respect the Baptist, who is glowingly colored, is very fine; the Virgin, the Child, and the Magdalen, partake of the character of his later pictures."* There is a "Repose of the Holy Family" at Bridgwater House, "in a rich poetical mountain landscape," says the author quoted above, who calls the work "an uncommonly carefully executed and glowingly colored picture;" but adds, "by this very unequal follower of Titian." Now we do but rarely venture to differ from authority so greatly superior to our own as is that of the writer just quoted: if we cannot think at all times with important speakers, we can at least hold our peace, and mostly do so, but we submit that this is scarcely a fair description of Paris Bordone. That his works are not unfrequently attributed to Titian is most certain; the Borghese Gallery in Rome supplies a case in point: the far-famed Judith, namely, turning her back on the spectator, long attributed to Titian, is now by common consent assigned to Paris Bordone; and there are many others. This may serve to give the measure of Bordone's distinction as to certain qualities, but does not prove him a follower of Titian; he should rather be called the follower of Giorgione, whose manner he did "set himself to imitate," says Vasari. But so also did Titian, and that the two masters should resemble each other—with a long interval between them, as regards high qualities, without doubt—is thus sufficiently accounted for. Bordone would indeed appear to have chiefly followed his own inspirations, an affectionate attachment to the manner of Giorgione being allowed its due influence.

Of thoughtful mind and retiring habits, there was indeed much to repel Bordone in the artist life of Venice as just then constituted; wherefore "knowing that he who would succeed in that city must endure much servitude in paying court to one or another, and averse to certain modes of proceeding then prevalent, Bordone resolved to depart and take what Fortune might offer elsewhere, without compelling him to become a beggar for employment." So successful was his study of Giorgione, that the proficiency he had attained was early acknowledged, and at the age of eighteen the brotherhood of San Nicolo dei Frati Minori commissioned him to paint an altarpiece for their church; but of this Titian sought by every means he could devise to deprive him, and continually threw difficulties in his way. Then it was that he repaired to the French court, and thence the subsequent journeys to Vicenza, Milan, Augsburg, and other cities, in all of which he executed works declared by the best writers to have given proof of extraordinary merit in the artist. Many of these are unhappily destroyed, or lost to his name, and are perhaps gilding those of other masters; the fine frescoes executed at Augsburg for the princely merchants of the Fugger family, with others at Vicenza, are more particularly to be deplored.

In Treviso Bordone produced numerous works; frescoes, portraits, and others of various kinds: he was greatly respected, as well as much admired, in his native place, as one who "well loved the same: a truly able artist and an excellent man." Some of the works here alluded to are now in the Venetian Academy, that of "Il Paradiso," painted for the church of Ognissanti, among them. Returning to Venice, Bordone executed various works there also, more particularly one for the Scuola of SS. Giovanni e Polo (the Venetian form of Paolo), wherein he has depicted the fisherman transmitting the ring of San Marco to the Signoria of Venice—a work of great interest as well as beauty, were it only for the precious memorial of the city, as she then was, which this painting preserves to us.

There is a most graceful little picture by this master in the Pitti Palace, its subject one that Paris much delighted in—a Repose in the Flight of the Holy Family; this is, or was, in the room called La Stanza di Marte. In the same gallery, and in the room known as "Stanza dell' educazione di Giove," is a much admired work of the master, "The Tiburtine Sybil," namely. This picture the authorities agree for the most part to call Bordone's masterpiece. Beside the altar of sacrifice stands the Emperor Augustus; the Sibyl is near him, and points to the infant Christ in the distance; her figure, one of great beauty, is described by competent judges as —"von schönsten tizianischen typus" (of the most beautiful Titianesque type).

Approaching the close of his life when Vasari wrote, Bordone was then "living quietly in his house," says that biographer, "being now seventy-five years old;† he works only at the request of princes, or others of his friends, avoiding all rivalry, and undisturbed by those vain ambitions that do but trouble man's repose; seeking, as he says himself, to escape the destruction of his peace and tranquillity by such as, proceeding by doubtful paths, are devoid of charity and disregard the truth. Bordone is in effect attached to that simplicity of life which he has ever sought; a man of upright mind, he proceeds according to his natural goodness, and desires no contention with the malice and subtleties of those who act less openly." Writing of contemporaries, Vasari is manifestly speaking with the reserve proper to a man who does not desire to exalt himself into a judge of questions the merits of which are not fully known to him; but the impression left by his words is altogether favorable to Bordone.

Nor are they discreditable to himself. It is true, as a German writer remarks—I think the lamented Ludwig Schorn, whose translation of Vasari, left incomplete at his death, is an invaluable work—"that no man exhibits his own character so effectually as when portraying that of another,"‡ and very estimable is the character which Vasari thus unconsciously reveals on many occasions. Those who accuse him of partiality cannot have studied either himself or his works as a whole. Van der Hagen, who is well acquainted with him and them, calls him "the true-hearted,"§ and you will not persuade a German to use that word lightly. Equally unfair is the reproach of inaccuracy; for admitting that he was unable, with all his earnestness and diligence, to obtain minute information on every point, it may with equal truth be affimed, that if you take well into account the extent and difficulty of his work—the biographies—with the time when it was written, and the absolute non-existence of all material, you will find the errors few rather than many. Succeeding writers have worked under circumstances much more favorable; nor is it any disparagement of the learned and accurate Lanzi, to say that but for Vasari and his subsequent editors, his own valuable work could never have seen the light. Lanzi would have been the first to admit this; and as regards the pretended enmity of Vasari to the Venetian school, let that writer himself bear testimony:—

"Non è il Vasari quel maligno verso la Scuola Veneta che vorrebbe farsi apparire. Scrive di queste pittur [he is speaking of Antonio Veneziano's works in the Campo Santo of Pisa] che 'universalmente, ed a gran ragione, son tenute le migliori di tutte quelle che da molti eccellenti maestri sono state in quel luogo lavorate.' Eccole dunque anteposte da lui alle fiorentine tutte e alle senesi, che ivi sono; giudizio confermato dal P. della Valle che pur tanto spesso da lui dissente."‖

And the Abbate is right: Vasari was no caluminator, nor was he ever consciously partial. If not a genius himself, he was the unenvying "admirer of genius in others;" as our own honest Northcote, who also knew him well, has well said, "displaying the character of a good man devoted to the Arts."* These testimonies could be multiplied to great extent if need were, but those given shall suffice; and if Vasari was sometimes mistaken as to a name or a date, are his successors infallible, even all that he has done to clear their way? Is Baldinucci, trustworthy as he is, always right? is Cicognara invariably correct?—examine his works and you shall see. Does Malvasia make no mistakes?—let Fuseli reply, and he will do so amusingly, if you consult him. But this is ungracious work: defending our first benefactor, let us remember also what we owe to others; *culpa mea, culpa mea*—but I repent me and desist.

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* See "Treasures of Art in England," vol. iii. p. 288.

† It was at that age, according to Ridolfi, that Bordone died. Note to English translation of "Vasari," vol. v. p. 407. See also "Opere di Vasari," vol. v. p. 220.

‡ See Preface to English translation of "Vasari."

§ "Van der Hagen. Briefe in die Heimath," vol. ix. p. 160.

‖ Storia Pittorica della Italia, tomo primo. Scuola Fiorentina, p. 49, *note*.

We now return to Jacopo Robusti. Cherishing no unworthy resentment at his expulsion from the school of Titian, Tintoretto inscribes on his studio those often-quoted words—"The design of Michael Angelo—the coloring of Titian;" and restraining in nowise the free course of his own genius, he proceeds to give it development under the guidance of those two fair rules.

Obtaining casts from Daniele da Volterra of the figures on the Tomb of the Medici, by Michael Angelo, from these, as Lanzi tells us,† he studied day and night, continuing his labors by lamp-light to "give the greater breadth and effect to his light and shade."‡ Furthermore, and to acquire a perfect acquaintance with foreshortening, less carefully studied at that time by the Venetians than by the Lombard masters, Tintoretto suspended figures in the air; he also "frequented the lectures and dissections of anatomists, to obtain a complete knowledge of muscular contraction of the human figure."

And the result? Strange and varied, yet in every case affording evidence of the power within. "The most daring genius he," says Vasari, "that painting hath ever possessed." Fresco, oil-painting, portraits from the life—he refused none, and excelled in all. It is true that some inconvenience is affirmed to have resulted from this method of suspension;" and Fuseli considers that "the want of equilibration sometimes found in Tintoretto's figures, may have been not unjustly ascribed to this habit:" he adds, that "the master at last became so used to it that he occasionally employed it for figures resting on firm ground."§

The rapidity of productions, which earned for Tintoretto the name of "Il fulmina di pennello," is known to all, and with the anecdote related of his "St Rocco in Heaven," still in the Scuola di San Rocco, most readers are acquainted; but since there may be some to whom it is not known, the facts are briefly given.

The picture forms the centre of the ceiling in that room known as the *Albergo*, or Guest-chamber, and was painted under circumstances related by Vasari, as follows:—"In the same city of Venice there lived, and does yet live, a painter, called Jacopo Tintoretto, a great lover of all the noble arts, and who delights in playing on various musical instrument" . . . . "He, having painted a large picture of the Crucifixion"—that Crucifixion still the glory of Venice—"for the Scuola of San Rocco, the men of that brotherhood, desiring some honorable word for the ceiling of the room, would have it done by the best painters then in Venice. They consequently called Giuseppe Salviati, and Federigo, Zucchero, with Paolo Veronese, and Jacopo Tintoretto, commanding each to prepare a design, with promise that the work should be adjudged to him who should acquit himself the best. But while the other masters were giving themselves with all diligence to the preparation of their designs, Tintoretto did but measure the space for which the picture was required, and taking a large canvas, he painted it with his accustomed rapidity, and, without saying a word to any one; affixed it instantly to the place intended for its reception. One morning, then, when the brotherhood had assembled to examine the designs, and determine their choice, they found Tintoretto's work completed—nay, already fixed in its place. They were at first much displeased, saying that they had required a design, not given him the commission; but Tintoretto replied that this was his method of making designs, that he knew no other. He added, that designs or models for all works should be made after that fashion; to the end that all might see what was intended for them, and not be deceived. Finally, though not without many difficulties, Tintoretto prevailed, and the picture remains in its place."||

Venice is, as might be expected, the city where Tintoretto may be most worthily studied; there is, indeed, no other where his wonderful powers can be fully appreciated; but some of those within reach of our own people may yet more usefully be mentioned in this place, and shall, therfore, take precedence.

The "St. George" in our National Gallery is known to all, and needs no further reference. Almost equally easy of access are the paintings at Hampton Court, where there are six by this master; of these, three are portraits, one said to be that of Ignatius Loyola, and sometimes attributed to Titian. The remaining three, are, an allegorical picture, called "The Expulsion of Heresy;" Esther before Ahasuerus—this last much praised; and a picture of the Virgin, with one representing the Muses.

In the Bridgewater Gallery also there are paintings by Tintoretto; three of them are portraits, the fourth is an Entombment of Christ; of these, too, the mere names alone are thus rapidly given, because, thanks to the liberal kindness of their noble proprietor, they are nearly as easy of access as those in our public galleris. Sir Charles Eastlake is in possession of a portrait, by Tintoretto, that of a noble Venetian; and in the collection of the late Mr. Rogers was the original sketch for one of his most renowned works, the "Miracle of the Slave." Mr. Rogers had also the finished sketch for Titian's "Gloria."

At Windsor Castle is a Holy Family, which, if my recollection serve me rightly, has all the force and suggestive powers peculiar to this admirable master, whose works rivet the beholder by the many thoughts they suggest, they should, if possible, always be visited when at leisure to profit by this high quality, and with time sufficient for the worthy consideration of their many other beauties. This, as we know, is not always to be done in certain cases; but in such—and Windsor Castle may be one of them—there is a remedy: go again, and again, there will be large reward—of that be certain—even for him who rates his moments at their true value. No time will be lost that is given to Tintoretto.

In the collection of Lord Shrewsbury, at Alton Towers, there is a fine example of landscape by this great master; the subject of the picture is "Joseph's Dream," "warm and clear in the tone of the flesh," and very "careful in the execution," few works of Tintoretto, within reach of the student at home, will be found more instructive. There is also a sketch of the Angel's appearing to the Shepherds, this too is full of spirit, and highly characteristic of the master; both are works of great value.

With a visit to these and other treasures of Alton Towers, you may combine one to Dovedale. Happy you! and being there, take your delightful way across that *most* attractive county of Derby; making, if it so please you, the charming round leading by the picturesque Matlock, and pleasant Rowsley. A short walk then takes you to Haddon, whence a delightful three miles, best enjoyed beneath the first fair beams of sunrise, present your delicious way to the lordly Chatsworth, where you shall find large consolation in the "pleasaunce," though the hour should be—and by maay—too early for admission to the presence of that great master to whose genius you would do homage. Happily there is no mansion calling the Duke of Devonshire lord, from which the lover of Art is doomed to turn away disconsolate; present yourself boldly, therefore, though you be the last and least of her worshippers,—you will find ready access, with ample cause to rejoice in the privilege.

The picture of "Christ and the Woman of Samaria" is, perhaps, the first work of Tintoretto to which you will give your attention; there is, besides, the portrait of an ecclesiastic,—the Archbishop of Spalatro,—nobly conceived and finely executed, with that of a Venetian admiral, somewhat different in manner, but entirely characteristic of the master, and showing all the force for which he is remarkable. Two fine landscapes by Titian also enrich this collection: the one has St. John preaching,

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* "Life of Titian," vol. i. p. 95.

† Storia Pittorica, tomo ii., parte prima.

‡ See Northcote's "Life of Titian," vol. i. p. 64.

§ Fuseli—"Life and Works," vol. iii. p. 353.

|| See Opere, as above cited, vol. iv. pp. 468, 469.

the other is a St. Jerome; but the figures, in the first instance, are wholly subordinate to the landscape. There is besides at Chatsworth a portrait by Titian of Philip II.; but although that monarch—less repulsive in his youth than in middle life—is here represented as a young man, yet are his many deformities of character, and the amount of suffering inflicted on humanity by his means, so constantly present to the memory, that no semblance of his face can be regarded with pleasure, even though the limner write himself Titian. Forget this, then, so soon as the artist-nature of you will permit, and bending your steps northward, when the gates of the hospitable Chatsworth shall have closed behind you, take next your suggestive way by the lovely dale of Middleton, and let your resting-place be the village of Eyam.

I am supposing you to be sensibly proceeding at your "own sweet will," as doth the river you wot of—not borne along, as are the cotton-bales, by that ruthless railway, fit for the voyaging of nothing more sensitive. Thus you have leave to pause before whatever may be found worth of arresting your step—nay, it shall be lawful for you to turn aside for all that may attract you whether by its lovliness or its worth—close Cousins for the most part; and it is for the latter that you shall pause at Eyam. There, standing reverently by the grave of the venerated Mompesson, the devoted vicar of Eyam at the time of the Great Plague, by recalling the deeds of that good man,*—"the priest, the physician, and the legislator of a community of sufferers,"—you may divest yourself of whatever shade may cling to your thoughts from contemplation of those cold, pale, evil eyes, revealing the evil nature of the Spanish Philip.

Of works by Tintoretto in other lands those most of easy access to our people are, perhaps, in the Louvre; and among them the most interesting are the portrait of the master, painted by himself; with a work said to be a sketch for the great picture in the Gran Sala del Consiglio of the Ducal palace, at Venice, and known as "Il Paradiso." No detailed description of Tintoretto's works in the Louvre can here be given, but we may remark in passing that the painting just alluded to—Il Paradiso, namely—is remarkable, as are so many of the master's works at Venice, for that vast number of figures, which cause the spectator who is but hurried past them, to resign all hope of comprehending what he sees before him; but every one of which is found, by him who gives them worthy examination, to have its own, and that a great, significance. Shining in glory and high above all appears the Savior Christ, with the Virgin Mother, whom he is in the act of crowning; the Apostles are ranged on either hand; next follow the various orders of the celestial hierarchy—"Thrones, Dominations, Principalities, Virtues, Powers," with the Evangelists, the Fathers of the Church, the Confessors, and the Virgin-martyrs, all glorifying the Lord of all.

A Last Supper, attributed to Tintoretto, is also in the Louvre; but this work is not considered by good authorities to be painted by his hand.

In the public gallery of Berlin is a Virgin and Child, by Tintoretto, with three portraits; two of them are those of "Provveditori di San Marco;" the third is that "of a man unknown." There are works by the same master in Munich, Vienna, Rome, Florence, and Madrid, nay, in all the greater galleries of Europe. Tintoretto, born a painter, passed no day in which he did not exercise that art which to him was as the breath of his life, his work, are consequently numerous; but in his native city it is that, of right as well as in fact, the best and most important of them are found.

To Venice then we return once more—Venice the sole and only—Venice with whom the heart of us hath been lingering even while our words have been of others. It was once the fortune of the present writer to be for some short time alone in that enchanting city, a circumstance rarely occurring in the life of an Englishwoman; but in this instance so far profitable, as that the hours of each day being given either to the Academy or to the Scuola di San Rocco—that last known to be a sort of gallery for the works of Tintoretto—the writer was thus enabled to form a more intimate acquaintance with the paintings of the master than could otherwise have been obtained.

Repelled at first, and incapable of comprehending the vast fields of story here laid open to his astonished gaze, the spectator is for some time rather bewildered than edified, and far more frequently disappointed—I had almost said displeased—than delighted: but let him persevere, light will break in upon him if he consent to wait the advent in humility; and he who does but come with the ordinary feeling of interest in a place, popularly known as one containing the works of a renowned painter, will return ere long with a long love and respect for the man, no less than with admiration of, and delight in, the artist.

No painter impresses more of his own character—a truly admirable one—on his works than does Tintoretto; "a most sprightly mind, a vivid fancy, and friendly, cheerful manner," are among the characteristics attributed to him by his contemporary, Vasari, who says elsewhere—"Most admirable is Tintoretto in every way, and most estimable, as is proved by all he does," Knowing him well, then, as his works enable you to do, you cannot marvel that his sweetest Marietta, the worthy daughter of his love, should refuse all that the most potent sovereigns of her day could bring to tempt her, rather than separate herself from that belovered father: and then that Death, the ruthless, should so early sever them? Alas! Alas!

In the autumn of 1852, the present writer, crossing the Tyrolese Alps, and proceeding from Styria into Italy, had suddenly to lament the disappointment of a fixed intention once again to visit the City of the Waters and her abounding treasures of Art; but was in some degree reconciled to the privation on hearing at Verona of the lamentable havoc made, even in the Scuola di San Rocco itself by the balls poured on the city in 1848. Cannon-balls through the pictures of Tintoretto! Woe, woe for Art, when so deplorable a sacrilege is even possible.

It is not without a painful sense of insufficiency that we presume to speak of the works bequeathed by this truly noble master to the ever-increasing admiration of all ages. Some one has said that none should venture to sit in judgment on paintings who has not spent a lifetime in the practice as well as the study of Art; what then of us who have but the love of a lifetime to offer in the place of both? We seek aid, therefore—we take refuge behind the broad ægis of our betters, and will not spoil a good subject by feeble handling.

Of Tintoretto, "Ne parle pas que vent"—to adopt a phrase from our friends across the water—there is, indeed, but one author—English or foreign, writing in such tongues as are accessible to the present speaker—by whom the truly admirable Venetian artist now in question has been worthily treated. In his words it is, then, that the paintings of Tintoretto, in Venice, shall chiefly be described—but where begin? Churches, Palaces, the Academy, and first of all, though last named, the Scuola di San Rocco, all put in their claims—and affectionate remembrance would fain allow them all. But when it is remembered that, half lost in the dark and solitary chambers of the building last mentioned alone, there are more than sixty pictures, it will at once be seen how small a portion of their number can here have space, even for its name; therefore it is then, and also because of our own deep reverence for their high deserts, that we would have our description of the few selected for mention to be nothing less than the choicest, the most complete.

We commence with a picture in the Church of St. Giorgio Maggiore—not because it is the best of Tintoretto's productions, but because few, even of this most noble master's works, exhibit more forcefully his power of appeal to the heart and mind, as well as to the imagination of the beholder; and also because the limner in words, whose efficient reproduction of its features we appropriate, has done his part with a love and care amply proving his appreciation of those invaluable qualites.

Placed over an altar in the north transept, this works represents the Martyrdom of St. Stephen." "The saint is in a rich prelate's dress, looking as if he had just been saying mass, kneeling in the foreground, and perfectly serene. The stones are flying about him like hail, and the ground is covered with them as thickly as if it were a river-bed. But in the midst of them, at the saint's right hand, there is a book lying crushed, but open, two or three stones, which have torn one of its leaves, lying upon it. The freedom and ease with which the leaf is crumpled, is just as characteristic of the master as any of the grander features; no one but Tintoret could have so crushed a leaf; but the idea is still more characteristic of him, for the book is evidently meant for the Mosaic History, which Stephen has just been expounding, and its being crushed by the stones shows how the blind rage of the Jews was violating their own law in the murder of Stephen. In the upper part of the picture are three figures,—Christ, the Father, and St. Michael. Christ, of course on the right hand of the Father, as Stephen saw him standing, but there is little dignity in this part of the conception. In the middle of the picture, which is also the middle distance, are three or four men throwing stones, with Tinoret's usual vigor of gesture, and behind them an immense and confused crowd; so that at first we wonder where St. Paul is; but presently we observe, that, in the front of this crowd, and almost exactly in the centre of the picture, there is a figure seated on the ground, very noble and quiet, and with some loose garments thrown across his knees. It is dressed in vigorous black and red. The figure of the Father in the sky above is dressed in black and red also, and these two figures are the centres of color to the whole design. It is almost impossible to praise too highly the refinement of conception which withdrew the uncoverted St. Paul into the distance, so as entirely to separate him from the immediate interest of the scene, and yet marked the dignity to which he was afterwards to be raised, by investing him with the colors which occurred nowhere else in the picture, except in the dress which veils the form of the Godhead. It is also to be noted as an interesting example of the value which the painter put upon color only; another composer would have thought it necessary to exalt the future apostle by some peculiar dignity of action or expression. The posture of the figure is indeed grand, but inconspicuous, Tintoret does not depend upon it, and thinks that the figure is quite ennobled enough by being made a keynote of color.

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* The reader, if there be one to whom the touching story of this excellent churchman is not known, may find it in the histories of Derbyshire, or in those of the Great Plague of 1665-6; see also Rhodes' "Peak Scenery," pp. 31-43.

"It is also worth observing how boldly imaginative is the treatment which covers the ground with piles of stones, and yet leaves the martyr apparently unwounded. Another painter would have covered him with blood, and elaborated the expression of pain upon his countenance. Tintoret leaves us under no doubt as to what manner of death he is dying; he makes the air hurtle with the stones, but he does not choose to make his picture disgusting, or even painful. The face of the martyr is serene and exulting, and we leave the picture remembering only how 'he fell asleep.' "*

From the Jour. of the Phot. Soc.

ATKINSON'S PORTABLE CAMERA.

[Exhibited at the Meeting, January 8, 1857.]

To the Editor of the Photographic Journal :

37 Manchester St., Liverpool, Dec. 27, 1856.

Sir,—The camera which I send for exhibition is for all ordinary use, by adapting suitable frames to it. The frame which accompanies it is the companion of the plate-box, which I have constructed to deliver the prepared plate to the plate-frame, and from the plate-frame to the camera, and receive it back without the possibility of its being acted upon by light. The prepared plates, a sheet of ground glass to focus with, and the plate-box, slide within an outer box; and by moving the inner box, so that the sliding-door of the outer falls exactly into any of the thirteen notches made in the handle, the aperture will be brought to agree with the aperture in the side of the plate-frame. The plate is then pushed with the greatest ease either in or out, as may be required. Taking the precaution of sliding down the narrow shutters of the plate-frame and box at the same time, before separating the frame from the plate-box, the two shutters can be moved together.

As the camera will take plates 9×7, I thought it better for plates of that size, and for all others larger, that they should be removed by the stick; but, for stereoscopic and smaller cameras, I merely elevate the plate-box or frame, according as I am taking or giving back a plate, so that the stick is dipensed with, as the plate will slide from one to the other.

Such plate-boxes and frames can be made to any camera, and I can furnish any size that may be required.

Yours faithfully,
J. Atkinson.

From the Liverpool Photographic Journal.

LONDON PHOTOGRAPHIC SOCIETY.

The monthly meeting of this society was held on Thursday, the 5th instant; J. Percy, M.D., F.R.S., Vice-President, in the chair.

The minutes of the former meeting were read and confirmed. Several new members were ballotted for and duly elected.

Mr. Hardwich then read a paper on the

MANUFACTURE OF COLLODION,

of which the following is an abstract:—

The Author commenced by stating that although the papers by Mr. Hadow, published in the Society's Journal, in which exact formulæ are given for the manufacture of collodion and the best proportion for it solvents and the iodizing materials, might seem to leave nothing to be desired; yet, as a uniform collodion is a thing which makers often fail to produce, there are still some points which require further elucidation, and the experiments here alluded to were undertaken with this object. The advantages of employing methylated spirits, chloroform and iodoform, also the various iodizing materials, formed the subject of the author's remarks.

"Methylated Ether" may be procured at half the price of pure ether, and corresponds with the latter in several properties. In these experiments it was redistilled carefully from caustic potassa, thus reducing the sp. gr. to ·718 at 60° Fahr. The methylated spirit was purified in a similar way by rectification from dry carbonate of potassa, and had a sp. gr. of ·820 to ·825.

The Collodion was prepared with

Methylated ether..................5 drachms.
Methylated alcohol................3 "
Iodide of ammonium...........4 or 5 grains.

Collodion prepared from this formula was found fully equal in sensitiveness, intensity, and half-tone to a similar sample prepared with pure alcohol and ether, intense negatives being taken in the shade in 4 seconds, with a double combination lens of 2¼ inches aperture and 6 inches focal length, whilst with a small stereoscopic view lens not more than 8 seconds were required under similar circumstances.

The sensibility and general properties of the methylated collodion being found so good, the report would have been favorable had the experiments been here discontinued; but on continuing the trials with commercial methylated spirits and ether, without having submitted them to the previous purification, the author arrived at an opposite conclusion, for the following reasons:—

1st. Methylated ether is less uniform in composition than ordinary ether, and shows a great tendency to become acid and liberate iodine from alkaline iodides. No two samples giving similar results, unless they had been previously rectified from caustic potassa, which is an operation to be avoided if possible.

2nd. "Methylated Spirits" possesses the property of absorbing a certain amount of free iodine: thus collodion, prepared as stated above, often becomes deep colored when first mixed, and in the course of a few hours becomes colorless, or, at most, of a straw yellow tint.

The addition of a bromide facilitates the absorption of the iodine.

3rd. Iodized methylated collodion does not appear to retain its sensitiveness for so long a time as the ordinary collodion. For experiments made to determine this point, iodide of ammonium was employed at the outset. The two collodions were nearly equal in sensitiveness; but at the expiration of a fortnight the pure collodion was found to work the quickest, although, at the same time, it was most highly colored. The absorption of iodine by methylated spirits does not therefore preserve the sensitiveness at a constant point.

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* See "Stones of Venice," vol. iii. p. 304.

4th. On taking the average of a large number of experiments it was found that the employment of methylated spirits occasioned great uncertainty in the physical properties of the film, the image being sometimes more and sometimes less dense than was correct.

Therefore, for certainty and constancy of action, the employment of pure ether and alcohol are recommended in preference to methylated spirits or ether, although for a few days after the methylated collodion is made the results obtained therewith may leave nothing to be desired; especially if iodide of ammonium be employed as an iodizer.

Chloroform, added to collodion, was found to remove certain markings on the film when an unusually limpid collodion was used; but the glutinosity, due to the employment of pyroxyline prepared at a low temperature, was not remedied, nor did it act in any way as an accelerator—any action of this kind which it was found to possess being doubtless of a physical nature, and not to be depended on for uniformity.

Iodoform injures the sensitiveness and half-tone, when added in quantity. As both alcohol and iodide of potassium frequently contain carbonate of potassa; and a mixture of alcohol, iodine and carbonate of potassa produce iodoform, these bodies should be tested previous to using, by reddened litmus paper, the blue color of which would be restored by a trace of carbonated alkali.

Iodide of Tetrethylammonium.—This salt was recommended by Von Babo as producing a collodion giving uniform results. The author has experimented with a nicely crystallized specimen, with which Professor Hoffman kindly supplied him. It was used in the proportion of 4 grains to the ounce of collodion; it does not easily dissolve unless a considerable quanty of water be present; iodine is liberated from it in the usual way if the ether be acid or oxidized. The sensitiveness of the collodion so prepared corresponded at first with an iodide of potassium collodion, but it remained stationary for a longer time, and the same progressive liberation of free iodine did not take place. This was explained by the fact of the iodide of tetrethylammonium being the more stable iodide of the two. As, however, we are now acquainted with the unusual stability of iodide of *cadmium*, the author does not think that any advantage would be gained by substituting for the latter a far more expensive preparation, and one, at the same time, less soluble.

Iodide of Iron was briefly alluded to as being one of the worst iodizers that could be employed.

Iodide of Ammonium is one of the best iodizers when pure; but it is very liable to be contaminated with sulphate and carbonate of ammonia, which latter is very prejudicial to the good keeping properties of the bath, by rendering it alkaline.

Iodide of Potassium is very liable to be contaminated with iodate and carbonate of potassa, both of which lessen the sensitiveness of the film. Its employment is also very liable to cause spots on the film from the sparing solubility of this salt in the ethereal mixture. If the iodide of potassium has a smell of garlic, as is sometimes the case with commercial samples, it should not be employed, as the peculiar body which gives rise to this smell has very retarding effects on the sensitiveness of the film.

Bromides and Chlorides, added to collodion, seem to diminish the sensitiveness of the excited film. Under certain conditions, however, they have a marked effect in increasing the intensity of the developed image. This was rendered very evident when certain kinds of organic matter, nitroglucose for instance, were present. If a little of this substance be dissolved in alcohol containing ammonia, it will in all cases produce intensity; but when a bromide or chloride is present the effect will be unusually strongly marked, and particularly so in the high lights, which will be impenetrably black and opaque. These facts are considered by the author to partly explain the differences of opinion which have always prevailed respecting the exact nature of the action of bromides in the paper processes. The development of the image may easily be confounded with its impression in the camera; and an agent having the effect of making that image more vigorous, would readily be thought to increase the sensitiveness to light.

Mr. Fenton stated that he had worked with collodion prepared with ordinary methylated ether and iodide and bromide of ammonium, with an acid bath. The result was not satifactory, having very little intensity. When the methylated ether was distilled with potassa the result was beautiful, possessing great brilliancy and good half tone. A whole year's experience showed that a methylated collodion was rather slower than the ordinary collodion, but very certain in its action, and did not vary in any appreciable degree for a considerable time. The light during last autumn was stated to have been exceedingly bad for photographic work.

Mr. Malone considered lime to be a much better substance for depriving alcohol of water than potassa, as recommended by Mr. Hardwich. Methylated spirit was objectionable on account of the uncertain nature of the constituents of the wood spirit employed in its manufacture. Some experiments which the speaker made with Mr. Fox Talbot, about ten years ago, were described as tending to prove that the addition of a bromide to calotype paper would, under some circumstances, tend to increase the sensitiveness, but not in sufficient degree to make it a matter of much importance. With respect to the employment of bromine in the production of color, Mr. Maskelyne suggested its employment some years ago, and produced come copies of trees by this means; but these did not appear to be superior to those obtained by the use of iodine in the ordinary manner.

Mr. Crookes stated that there was some constant results attendant upon the employment of iodides, bromides, or chlorides in the paper processes, which he had met with in the course of experiment. On employing a sensitive surface of pure iodide of silver there was very little likelihood of those parts of the picture, upon which the light had acted most strongly, becoming red and transparent, even after a very prolonged exposure; but the addition of a bromide or chloride was sufficient to give it that objectionable tendency.

Mr. Malone enquired if Mr. Crookes considered the addition of a bromide to the iodide was of any advantage in copying color.

Mr. Crookes thought that it was of very little use. There is reflected from the vegetation such a mass of light, which equally affects bromide and iodide of silver, that the action of the narrow band of rays in the solar spectrum, to which bromide is more sensitive than iodine, is almost unnoticed, and considering that bromides are only used in conjunction with a large excess of iodides, even this slight advantage disappears, and the supposed value of bromide for copying colors is seen to be one which it does not deserve.

Mr. Shadbolt considered that employing bromide in the paper processes had a tendency to make the sky rotten. With respect to the blue contained in green light being active in giving an impression, he quoted an experiment to show that the yellow accompanying the blue would neutralize its action, as the yellow ray was not merely inert but absolutely destructive. In reference to some remarks of the last speaker, he said that yellow flowers, although of the same tint, would have very different photographic properties. The experience of Mr. Glaisher, in the meteorological department of the Greenwich Observatory, was alluded to as proving that, when gaslight was used, they found a mixture of iodine and bromine was more sensitive than iodine alone. With respect to methylated collodion, Mr. Wenham was stated to have prepared a similar material, in which methylic ether was employed. The appearance of different dried films under the microscope was lastly alluded to.

Mr. Malone considered that in experiments on this point it must be remembered that the solar spectrum was the only pure source of color, and that colored glasses were very liable to cause erroneous conclusions, inasmuch as the transmitted rays often bore no relation to their apparent color.

Mr. Hardwich said in reply to some observations of Mr. Crookes, that in experimenting with bromides in collodion, it must be remembered that the presence of a very small amount of organtic mater entirely reversed some of the effects of this body, thus, if added to a pure iodized collodion it had the effect of injuring the intensity of the more highly illuminated parts, but if a small portion of sugar was added the intensity was remarkably increased.

Mr. Anthony much preferred a bromized collodion, as giving pictures far more beautiful in half tone, and with truer rendering of the effects of color, than iodized collodion.

The Chairman called upon Mr. Crookes to give results of his experiments respecting the superior sensitiveness of bromine to artificial light.

Mr. Crookes agreed with Mr. Glaisher as regards the advantage of using bromide for artificial light. Although in daylight the narrow band of colored rays, in which bromine was superior to iodine, was nearly overpowered by the immense volume of more strongly acting higher rays; yet in artificial light the contrary effect took place, this narrow band was the most voluminous of the active rays, and consequently the advantage of adding bromides to the iodizing bath was very apparent. A mixture in the proportion of their atomic weight was found to give the best results. The speaker denied that any obliterating action of the yellow rays would be apparent in ordinary camera work. An impression given by the blue rays in a few minutes would require exposure of some months to the yellow rays to obliterate it.

Mr. Malone thought that the obliterating action of the yellow rays was confirmed by some of Mr. Claudet's earlier experiments on the daguerreotype plates.

Sir W. J. Newton said that he added bromides to the iodizing bath for the paper in his printing process, and found the half tints better brought out.

Mr. Shadbolt then read a paper on

POSITIVE PRINTING WITH A NEW TONING AGENT.

At the Meeting of this Society in the month of November, 1855, I offered some remarks upon this subject and recommended certain modes of manipulation. Since then I have continued my experiments and have now, I believe, some further points of interest to communicate.

I formerly insisted upon the necessity of keeping the salting material as much as possible on the *surface* of the paper, and deprecated the practice of soaking the latter, having always found it productive of flat-looking pictures. Upon a recent occasion when Mr. Long brought before the Meeting some of his experiments upon printing, I took the opportunity of opposing this mode of operation, but in so doing I fear I condemned it more strongly than I was justified, having ascertained by subsequent experience that a certain amount of impregnation of the paper is advisable under some circumstances. I think it but due to Mr. Long to state this much, but I would by no means have it inferred that I at all approve of the practice of *soaking* the paper in the salting solution, even now, as I find sufficient impregnation for any purpose is attainable by floating for some time; and the *surface* of the paper by this method retains more of the chloride and is less liable to be made woolly in texture.

Another point of much importance to which I desire to direct the attention of Photographers, is, that by *regulating the amount of the free nitrate of silver* many negatives that are weak, can be rendered available for producing positives of a much better quality than they are usually made to yield. Of course I do not mean to state that a poor negative can be made to produce positives equal to those that can be got from first-rate negatives, but *provided all the details are present* in the negative, although they may be weak for this, from under or over exposure or insufficient development, *fair*, not to say good pictures may be produced by appropriate treatment. Thus in the case of an over-exposed negative or one under-developed, where the contrasts between light and shade are not marked enough, *a very large surplus* of free nitrate of silver will in a great measure rectify the failing; while on the contrary, an under-exposed or over-developed negative is best managed by a small surplus of free nitrate of silver, *provided* that the amount is sufficient to allow of the chloride reaching the bronze stage by a sufficiently prolonged exposure to light. With a ten-grain-to-the-ounce solution of chloride of ammonium for salting the paper, I have used with the glass rod as *much* as a two-hundred-grain-to-the ounce solution of nitrate of silver and as *little* as a forty-grain one in extreme cases in both directions.

From generals I turn to particulars of a new process of toning that I have devised, by which I am enabled to carry all the necessary operations through at an unprecendented speed, the positive picture being finished and mounted, if desired within *an hour and a half* from the moment of its being removed from the printing frame, having undergone fixing, toning, washing, and drying, and, be it observed with *ample washing* for this process, in which hyposulphite of soda is of course discarded.

I was led to experiments resulting in this process from a remark made to me in this room some short time back, by Dr. Percy, to the effect that he considered sulphide of silver one of the most *permanent* compounds of that metal, and that we might yet return to it for toning purposes; the objection then existing being principally the unpleasant color of that substance, which, when in a finely divided state, is of a brownish yellow, but when in masses it assumes a brownish-black tint. On considering this latter fact it appeared to me to be very possible always to ensure a sufficient mass of material to cause the color of even the half-tones of the positive picture to present the brownish-black shade, and on putting my theory to the proof I found that it was successful in practice, as the accompanying specimens will show.

In the manipulation employed, if the fixation of the picture is defective by reason of any portion of the chloride of silver being left behind, the mode of toning adopted *destroys the picture at once;* but this, far from being an objection, I consider an advantage, as a toning bath acts as a test on this point, and if faulty, the punishment falls on the right person, viz., the producer instead of the purchaser of the intended picture.

There is at present one defect in the process which I do not see how at present to remedy, but this applies more or less to nearly all the processes at present in use: I mean the necessity for over-printing, as the intensity is somewhat reduced by the subsequent fixing and toning. The material employed is far less costly than any salt of gold, so that economy meets with due attention.

I now proceed to describe exactly my mode of operating as follows:—

The paper selected is to be floated until *well moistened* (for about a minute for foreign, or two minutes for English,) upon a solution composed of,—

Gelatine	1 grain,
Chloride of ammonium	10 grains,
Water	1 ounce,

and then dried by suspension. Chloride of barium may be substituted for the ammonium salt, using, however, double the quantity, that is, twenty grains to the ounce. A little heat is required to dissolve the gelatine.

After excitation with nitrate of silver the exposure in the printing frame must be carried on until the shadows are well bronzed, and the half-tones considerably darker than they are required.

After removing from the frame, the free nitrate of silver is to be removed by floating on common water for about five minutes and again on a second quantity of water.

For the fixing and toning a rather deeper dish than usual is employed, having the upper edge *ground level* so as to be made capable of being closed by a sheet of plate glass laid over it. The wet picture is placed in this dish and the cover of glass put on, and a sufficiency of liq. ammoniæ fortis, diluted with four or five times its bulk of water, is poured on (just raising the plate of glass momentarily for the purpose), and by taking the dish in both hands the liquid is made to flow backwards and forwards over it for about a minute or so and is then poured off and the picture immediately washed with plain water, allowing it to soak for about five minutes in each change, of which two or three will be sufficient.

The color will now be of a hideous staring brick-red tint, and is ready for toning. This process is performed in a similar dish and manner to that used for the fixing, using, however, a solution of hyposulphate of ammonia diluted with four or five times its bulk of water. The instant this liquid comes in contact with the picture, the red tone is changed to a pleasant brownish black, and a few second of time are sufficient to effect all the necessary change, though no harm results from a minute or two being spent over it, if convenient.

The proof must now be rinsed in two or three changes of water, and may be dried by artificial heat, or spontaneously, as convenience may dictate. A minute or two in each change of water is sufficient.

If the fixing has been imperfectly performed, the *lights* of the picture will be destroyed by the hyposulphite of ammonia, being more or less browned, but this need never occur except by gross carelessness.

Although I have every reason to believe that pictures produced by this process will be permanent under all ordinary conditions, of course time alone can satisfactorily prove the fact.

(Dr. Percy then left the Chair, which was taken by Sir Wm. Newton.)

Dr. Percy.—Mr. Shadbolt has called upon me to offer a few observations upon this subject; I will not occupy more than one or two minutes in doing so. In the first place, with regard to the permanency of sulphide of silver, I think there can be no doubt at all upon that point; I can speak for seven or eight years, and from specific experiments, and I can assure you I find no trace of fading whatever. I prepared some papers just as Mr. Shadbolt has stated, and by a mode which was introduced by my friend Dr. Shaw of Birmingham eight or nine years ago. I have not seen any fading where the washing had been properly performed. I cannot but be persuaded that when photographers complain of sulphur pictures fading, in ninety-nine out of every hundred instances it is their own fault. Some dislike the color produced by sulphuretted hydrogen; but it is a difficult thing to lay down any standard with regard to color.

Mr. Hardwich.—I am sorry I cannot at all agree with Mr. Shadbolt and Dr. Percy. I think the proposed plan of toning by sulphur quite unsafe. Sulphide of silver is permanent; it was from Dr. Percy himself that I learnt this. The toned picture however is not sulphide of silver; it may be black at first, but it will become yellow by keeping, the change beginning at the edges of the paper and passing inwards to the centre. The picture having once become yellow will undergo no further alteration.

Dr. Percy.—I spoke of the yellow color: it is quite permanent; for six or seven years I have never found it to change. A color of that kind is very suitable for some subjects.

Dr. Becker.—If the toned image consists of sulphide of silver how is it that it undergoes any further change by the application of sulphur?

Mr. Malone.—Reference to the Journal will show that I have constantly been in favor of the much-abused sulphur. In 1851 I published, in conjunction with Mr. Talbot, the statement that a durable color could be produced by means of sulphur; I believe that was the first published recommendation of sulphur as a toning agent. I know nothing of the experiments of Mr. Shaw; he may have made, but he never published them, and I think I may claim what priority there is on that point. I am not over jealous in the matter: I merely wish it to be fairly stated that, whatever Mr. Shaw's experiments may have been, I was the first to publish the fact.

Mr. Howlett.—I may state, in support of the facts mentioned by Dr. Percy, that I have two photographs taken by myself five years ago by the sulphur process, and there is not at present the least appearance of fading.

Mr. Malone.—I wish to suggest to Mr. Hardwich that if a picture is washed carefully and placed in a dry portfolio, it will not fade. I merely wish to put one fact against another.

Mr. Hardwich.—I do not assert that sulphuretted photographs will fade if kept dry; but they fade if exposed to moisture, and you must always calculate upon a certain amount of moisture reaching the print. That moisture will destroy a sulphuretted print, whereas it might not destroy a print toned in a different way.

Mr. Malone.—The question of moisture is undoubtedly established by Mr. Hardwich, and I may mention a circumstance confirming that opinion. In 1844 Mr. Fox Talbot had in Berkshire a screen of sulphur pictures, all of them no doubt carefully washed; the screen faced a south window, and whilst there for some years there was no visible change; but when Mr. Talbot removed to Kingston, the screen and pictures were placed aside in a damp shed and forgotten; when I asked to look at it sometime afterwards every picture had vanished.

From the Journal of the Pho. Soc.

PROCESS FOR PRINTING TRANSPARENCIES.

To the Editor of the Photographic Journal.

Sir,—In answer to the inquiry of your correspondent "Alpha," in last month's Journal, I beg to say that I find the following process to answer admirably for transparencies.

Gum a slip of paper down each side of the face of the negative. Prepare a plate with collodion in the usual way, and after removing it from the nitrate bath, allow it to drain with its lower edge on a piece of blotting-paper for two or three minutes. Then place the negative on it, face to face, and hold the two (I fasten them with an American letter-clip at each end) to a gas-light. The time of exposure will be from one to three minutes. The negative, of course, must be towards the light. Develope with

Pyrogallic acid	3 grs.
Citric acid	3 grs.
Water	3 ozs.

adding a few drops of nitrate bath to the developing solution after it is poured off for the first time. Any degree of blackness can be obtained with this formula. I may add that I prefer citric acid for all processes.

I am, Sir, your obedient Servant,

Citric.

The slips of paper prevent the negative from being injured by nitrate of silver, through contact with the prepared plate.

To the Editor of the Photographic Journal:

Peterborough, Feb. 11, 1857.

Sir,—In reply to a letter in the last Number of your Journal from "Alpha," allow me to communicate a process by which I have obtained some very beautiful results.

I coat a plate with negative collodion, excite with a negative nitrate-bath, from which the plate is removed into a bath of distilled water, and lifted in and out until all the oily streaks disappear. I then pour over the film a large quantity of water to wash away the free silver, and treat the plate with gelatine after the plan of Dr. Norris, described in the 49th Number of your Journal.

I place this dry plate, with the negative to be copied, in a printing frame, and expose it for *about* two minutes to the light from any Argand gas-burner, the rays of light being concentrated and rendered parallel by a plano-convex lens. The plate is then returned to the bath of distilled water for three or four minutes to soften the gelatine, when the picture may be developed with the ordinary pyrogallic solution, but the color of the resulting picture is disagreeable, and far from bright.

The most beautiful picture is obtained by developing with protosulphate of iron, and then darkening it by the use of bichloride of mercury solution, followed by dilute ammonia.

These pictures may be used as transparencies for the magic lantern, or backed up with opaque white varnish, when they have the appearance of pictures on paper, but with all the delicacy and accuracy of detail peculiar to direct collodion positives.

I am, Sir, yours obediently,

J. W. Lawrence.

AN ARTIST'S RAMBLE IN ROME.

Short as the distance really is from Spoleto to Rome, it would be worse than unwise even to think of it while such places as Terni, Narni, Civita Castellano, and Nepi, must be passed *en route*. A drive, or walk of about four hours, will change the scene of operations from Spoleto to Terni, where there is the most beautiful waterfall in Europe, and the most intolerable set of *Ciceroni* in the world. As it is some five miles from the town to the falls, and up hill all the way, if you are on foot it is better to engage one guide if only to get rid of the rest; he will do for a porter if you require one, and can be dimissed when you arrive at the top of the hill beyond the little village of Papigno, where is a fresh gang of importunate guides ready to fasten upon you, should you by any means escape those in the town. The view of the valley of the Nera above the falls here is remarkably fine, and at a short distance the first burst of the Velino from its rocky channel into the terrific chasm below becomes visible. Here you may fairly dismiss your guide, for, except as a porter, he is no longer of any use, and bores you most inæsthetically, to make use of the latest sesquipedalian enormity. How I rejoiced when mine was fairly off! and pushing through the ilex shrubbery, I felt myself at liberty to sentimentalise uninterruptedly, picking cyclamen by the handful and throwing them away like buttercups, rambling through the underwood to all the points, which speak for themselves, and are readily found with no guide but the sound of noisy waters. At Terni no one thinks of anything but the falls: indeed there is nothing in the town to interest an artist, and standing as it does on flat ground, thickly covered with trees for training vines and feeding silkworms, it is not easy to find points of view worth having.

At Narni, however, the case is reversed; there the town standing on a promontory, commanding views along the valley of the Nera, is itself the most striking feature of the landscape. The ruins of the great Roman bridge, the *ponte rotto*, stand in a very pretty ravine, which contains good forest and rock scenery with the Nera flowing through it; the modern bridge over the Nera, itself almost a ruin when I saw it, spans the river in a meadow scene as quiet and verdant as if it was in Holland; and though within a stone's throw of each other, the contrast between the two views is very remarkable. The road from Narni through Otricoli to Civita Castellana fully sustains the interest of this route; walking up the hill from the town you are still in a richly-wooded country, and before reaching Otricoli you see the solitary hill forced upwards through the level of the plains which stretch away to Rome, and which will be your companion till you have crossed the Campagna beyond it and left it at Albano; this is Soracte, in feature somewhat resembling the Malvern Hills. It would not be worth while to stay at Otricoli, although it is a curious "conglomerate" of antiquity and the middle ages. I noticed about the streets marbles enough to make a first-rate provincial museum in England; Roman altars as the stems of doorposts, or lying useless under tumble-down walls with groups of ragged urchins playing about them. But Civita Castellana may vie with Spoleto for abundance of subject. The principal feature is a large fortress, somewhat dwarfish in its proportions, but good in color; this is seen to great advantage from certain points near a fine ravine which runs under the city walls, while the Apennines form a distant background of the most varied hues. The ravine itself is full of drawing, with a stream brawling through it, and dammed up here and there to turn a mill, till it flows away through the arches of a viaduct one hundred and twenty feet high; here it meets another stream from a different, though less interesting, ravine. In looking at drawings containing viaducts and aqueducts not in ruin, made before the reign of railways had rendered us so familiar with arcades spanning valleys, one is greviously distressed by finding how much of their interest is now gone. I suspect it will be some years before artists will paint pictures of railway arches unless commissioned by a director, yet one could not have passed such a viaduct as this at Civita Castellana without a sketch, though after all it merely represents the same thing. In the town the cathedral contains little but curious mosaics to induce a visit. The Piazza was generally filled with large groups of country people, and the costume is good without being showy; it would be far better to get studies of it here than from models in Rome, where it is often made up and tawdry. The walk to Falerii, about four miles through a forest with some fine pinasters, is interesting enough, but the ruins possess more interest for the antiquary than the artist. After Civita Castellana, Nepi is again a point rich in landscape subject; a villainous-looking place, and the skulls of some brigands, one a woman's, still preserved in iron cages on a wall by the roadside, by no means convince you they were the last of their race. Like Civita Castellana, Nepi owes much of its picturesque beauty to its position on the edge of a precipitous ravine, whose sides, clothed with evergreen shrubs springing from the clefts of the rocks, are surmounted by picturesque towers and dilapidated fortifications, more useful to the artist than any one else. Retracing your steps a short distance on the road to Civita Castellana, the traveller meets with some fine arches of great height, another viaduct in short, but very beautiful from its situation.

Between Nepi and Baccano there is nothing to interfere with your indulging as much or as little sentiment as your nature may require, from the consideration that to-morrow will bring you to Rome. I imagine very few ever forget the feelings of that day, or the sensations he experienced when, on leaving the inn at Baccano, probably at a very early hour, about a mile over the first hill top he looked across the campagna, and, as the morning mists rolled slowly away, he beheld the dome of St. Peter's, and knew that within its shadow lay such an accumulation of associations and realities, as would, from their number, themselves supply the chief impediment to their perfect enjoyment. A bold man wrote a book showing how you might see Rome,—was it in five days? surely he was the inventor of those tasks of strength and agility which we read of, where men run so far, leap so high and so often, trundle a wheel and throw about iron weights of fifty pounds apiece, and do a dozen other things within the hour! Here is Eustace's catalogue of what one *might* see. "Rome contains forty-six squares, five monumental pillars, ten obelisks, thirteen fountains, twenty-two mausoleums, one hundred and fifty palaces, and three hundred and forty-six churches. Of these objects, most have some peculiar feature, some appropriate beauty, to attract the attention of the traveller."* The Romans boast that the pope could perform mass in a different church every day in the year; if we accept this literally their number would exceed even that given by Eustace, and I doubt any having been built since his time. Entering Rome by the Porta del Popolo an artist feels in a moment that he has crossed the threshold of a gigantic studio, his eye is instantly filled by objects of Art, where taste and feeling were the first consideration; the Piazza in which he has placed his foot is the decorated vestibule of a city, which is to him merely the depository of the Arts of all ages. Of politics, civil and religious, he will learn nothing, if he will shun "Galignani," and the English newspapers, but the Arts will meet him at every turn. He will find himself thrown into the bosom of a republic of Art formed by emigrants from all lands. They are counted by the thousand; and though the greater number of the members are constantly changing, a large proportion are permanent residents; and these keep alive those generous sentiments which clothe all new comers with the character of friends and not intruders. This is not generally understood among artists in England; and the consequence is there are some great mistakes made by our countrymen on arriving in Rome. Now and then they are simply ridiculous. A clever young coxcomb meets with early success and determines to go, writes his address in the Exhibition Catalogue before he leaves London, as "Rome"—in Rome in general, he is sure to be heard of; and by way of "doing in Rome" as he thinks "the Romans do," he shaves no more. Some months pass away before his address is truly "Rome;" and then he arrives with a very creditable beard and moustache, and a hat of most surprising contour. We find him frequenting the Caffé Greco,* (though imbibing none of the qualities of its occupants but the smell of stale tobacco), and "doing" the given number of palaces and St. Peters. After a time, he finds that the pursuit of Art as carried on there is too serious; he succeeded at home by a certain cleverness of "handling," without any regard to subject, and home accordingly he goes by the steamer as soon as possible, not one whit benefitted by his change of scene. Another, confident in his own abilities, comes merely to study the antique: he is already, in his own estimation, above all moderns; brings an introduction, not to his fraternity, but to some influential resident. He does not understand the social feature of the place, and that all residents not artists are amateurs, and make common cause with them; and is rather annoyed at finding himself at an evening party made actually for the purpose, surrounded by a perfect Babel of artists, to the leading men of whom he is most kindly introduced. But he despises the moderns, and coldly receives the advances of a man whose kind attentions to such of his countrymen as happily make his acquaintance, is only surpassed by his unpretending demeanor and most exalted talent; (at that time second only to Thorwaldsen, he has now no superior:) he not only returns no visit, but actually commands his assistants to shut the doors of his studio to all artists, and they blush while they obey his orders: cap in hand a Roman left his work, and knowing full well who was the unintentional intruder, he crimsoned over from head to foot, as with a thousand apologies he actually closed the gates in the face of such a man as ——, saying "these are our orders." This was not certainly "doing as they do in Rome;" and he too soon returns home, finding, when too late, that he had abused the first maxim of the republic which he had entered unbidden. There are, however, a sufficient number of those who arrive bent in good earnest upon study and improvement, who bring letters of introduction to the right people, follow the advice so kindly given when sincerely asked, and who for many months of their existence lead a life of happy intellectual enjoyment which they can never forget, and may rarely hope to repeat. These soon form little groups, who share the expenses of models between them; and, leading a life of good fellowship, ramble over the Campagna, or into the mountains, and return home with well-filled folios and well stored minds; and let their success in after-life be what it may, there will remain to them a host of pleasant recollections which time may sweeten but can never destroy.

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* Classical Tour, vol. i. cap. xiii.

Some caution is necessary in painting from models who offer themselves as Contadini: particularly to those who, I must say, unfortunately arrive at Rome by sea: if they have travelled overland, working their way, they will have learnt the real from the made-up costume some of these professed models assume; if not, they are likely to be painting tawdry finery which certainly was never worn in the mountains, now the only place were national peculiarity of costume is any longer to be found. In most of the villages in the mountains which encircle the Campagna, the peasants will willingly sit to you for a small sum, and the costume is generally better *felt* under these circumstances. In the city of Rome the occupation is held in such contempt, that it is a rare thing to get a Roman model, and a good one—that is possessing the required features—will presume so immoderately as to prove an infliction of no ordinary kind. Some have followed the occupation since their childhood, and many amusing anecdotes of the *study* might be collected from their conversation. A countryman of our own painted a very large picture in Rome, some years ago, from sacred history, which seems to have furnished an inexaustible fund of surprise and amusement, not only to the models who sat to him, but to the whole city. One woman told me she sat for an "Infant Saviour;" and so long was the picture in hand, that she afterwards sat for the "Virgin Mother" of herself. A man who has since collected costumes, and got up a model academy of his own, was slung up by the wrists and ankles, to represent an angel flying, and, when writhing with pain, was threatened with a pistol, unless he lay still. If you are induced to buy costume, when you have paid for it, keep it; as some of the models will sell an attractive article of dress to everybody they sit to, begging the use of it till the season is over. Some of them have really parted with their chief attraction by selling an apron or some such thing, which they had worn for years. One of our oldest residents there, who has an increasing love for what he so excels in painting, told me he had just been obliged to yield to the entreaties of a woman and give her back her apron, for she found that all her popularity depended on that,—a compliment she could not at all understand.

The best points for sketching the remains of ancient Rome are to be found by crossing the Forum, or the Via Sacra, towards the Palace of the Cæsars. The entrance to the remains of the palace is not easily found, but it is through a farm-yard at the back: some points are visible from what were the Villa Mills, which were always accessible; and also from the second tier of arches in the Collosseum. The garden of the Passionists near the Colosseum, or of the Maronite monks near St. Pietro in Vinculis, or the Villa Mattæi behind the Colosseum, are all good points. The Forum speaks for itself. The road to the west will lead to the Piazza della bocca della Verità, with a good fountain, and the favorite little temple of Vesta: here are generally good subjects in the way of carts and grey bullocks, or mules and country groups. In order to find them, it is better to begin the day there, as I observe they usually leave the city after the middle of the day. At a short distance from most of the gates there are Osterias or little inns, where the wine is sold cheaper, as it escapes the tax paid upon entering the city; and here are often to be found beautiful groups of figures and cattle. Following the Albano road for two or three miles, you will find yourself in the heart of the aqueducts; and where pains have been taken to secure drinking-places for the cattle, there will be generally good opportunities for similar studies. I was witness to a scene of first-rate interest to an animal painter while sketching here. Some bullocks fastened to a cart had finished drinking, when the driver, in backing them, contrived to let the cart run too much on the bank in the centre: the bullocks being awkwark in their movements the cart at last fairly backed into the water, drawing them in with it. One fell altogether, and impeded the efforts of his companion to gain a footing on the bank again. The driver in his dark velvet dress and rich brown hat, struggling with these grey monsters; the ruined aqueduct of Old Roman brick-work mantled with ivy, having at its side a more modern sculptured wall, through which the water flowed to the basin whence they were drinking, formed a most desirable assemblage of color, while the incident was improved by the arrival of groups, some with mules, and others with carts and oxen like that in the dilemma. By the aid of some of the drivers, and a good many appeals to the Madonna, though rather rudely uttered, the beasts and their burthen were at last emancipated. By the Porta Maggiore the road leads to many good remains of tombs and picturesque scraps. Two or three miles farther are some caverns overgrown with verdure and not easily found; they are said to have been used as stone quarries for ancient Rome: they now afford shelter to nothing better than the numerous foxes which are to be met about the Campagna. Occasionally, however, they are invaded by a numerous and joyous party of a very different kind. It is said that Raffaelle used to give an annual treat to his friends and scholars in them; and for many years past the custom has been revived in some sort by the artists residing in Rome holding a rèunion there. It was my good fortune to be present at one, and a very interesting scene it was. It appears that a few years previously the papal government had taken some alarm at these meetings, and dreading the entrance of such a party *en masse* to the city, had stationed a troop of dragoons at the gate to meet them on their return, but as, it happily turned out merely to break them up into small groups before they reached the city. At the time I speak of all political fears had subsided, and the party went forth and returned unmolested except by a storm of rain, which will attend pic-nics, even in Italy, sometimes. The artists arrived on the Campagna by nations; each nation carried some badge or color, as a distinguishing mark, but when they approached the first group of ruins, the Torri dei Schiavi, parties disappeared among them to make a masquerade toilet, and there soon emerged gold and silver knights, Quixote and Sancho, Red Indians, or even peasants of the Roman States, and in short the usual fancies of masqueraders in-doors were indulged in the face of day, on the breadth of the Campagna of Rome. This proceeding at once divided the assembly into actors and spectators, and I need not say to which class our countrymen belonged; in this manner the procession once more advanced towards the caverns selected as the saloons for the day's festivities; rude tables were soon constructed, and the carts, which had been sent out with provisions, were unloaded and the viands becomingly disposed of. The somewhat rude dinner at an end, groups of Germans gave us some admirable singing; as usual with them, they were skilled in part music, and, by the aid of an admirable *falsetto*, one groupe of Bavarians particularly, delighted the whole company. Then the premium for the highest merit among the students of a certain class was given *en Grotesque:* a dark cavern being selected and filled with bones and skulls of cattle and partially illuminated, a tutelary genius appeared, to whom the youth was introduced and delivering an ode suitable for the occasion, received a medal, of what value I cannot say, indeed we all received from somebody a medal commemorative of the occasion, by association only, for they were *mezzi baiocchi* pierced for the riband. This "imposing ceremony" over, we amused ourselves with rambling about, talking and sketching, and found during the afternoon that parties were arriving from Rome as spectators of the scene; one carriage contained the venerable Thorwaldsen, and it was a good lesson to English apathy and unsociability, to see the rush made by the whole party to do homage to their beloved chief, for so he was by common consent of all who went to Rome from love of Art. It was probably by no means the first display of collective admiration he had received, but the old man gave visible proofs of its effect upon him, and indeed it was well known that no artist however humble his pretensions, ever approached Thorwalsden for advice or assistance, who did not receive it, and unsparingly; his love of Art extended to its votaries, and they returned it with the most genuine gratitude.

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* The coffee and smoking house most frequented by artists.

It would be beyond our present purpose to attempt a seletcion of objects of interest in such a place as Rome, "their name is Legion," and as they are well enumerated in Murray's Handbook of "Central Italy," without which assuredly no one will now venture there, I may safely leave the selection to be influenced by the information he gives; the visits to the palaces will be confined to about twelve or fourteen, and to about fifty of the churches. I can only repeat the advice I gave in an earlier number, do not trust too much to climate; go to churches and galleries when it is too wet or too hot to sketch out of doors, but when you can go out, do so. Work from Nature while she is approachable, and study Art when she is not.

From the Jour. of the Pho. Soc.

DUBLIN PHOTOGRAPHIC SOCIETY.

The fifth Meeting of the Session was held on Wednesday, the 4th instant, at the Royal Dublin Society House.

Gilbert Saunders, M.R.I.A., Vice-President, in the Chair.

Mr. Vickers exhibited a sensitizing bath for collodion plates in which the "dipper" was permanently attached to the cover of the bath, and thus both protected from injury in carriage, and always ready for use.

Mr. Grubb, Hon. Sec., read a paper "On the use of Rock Crystal (in lieu of glass) in the formation of View Lenses." This paper was furnished by the Hon. Sec. in consequence of a proposal by a photographer to adopt a single (*i. e.* an uncorrected) lens of rock crystal for the view-lens, and Mr. Grubb gave his reasons for concluding, that such a lens, though it would transmit a much larger proportion of the actinic rays, still, from its being an uncorrected lens, the aperture which could be used to give equally distinct images being necessarily smaller than that of a corrected lens, no advantage would be gained, either in respect of quickness or otherwise, from the use of the crystal lens.

The Hon. Sec. also exhibited a large Camera of peculiar construction, combining portability with great steadiness, and with the power of adjusting the field so as to bring all parts of the subject (or view) as nearly as possible to equal distinctness —also the power of directing the axis of the lens to any part of the field desired. This Camera has, in addition, the usual power of raising the lens with respect to the field, for taking in objects of high altitude, which it effects *without* the incumbrance of the ordinary sliding front.

For the Photographic and Fine Art Journal.

OUTLINES ON ENAMELLING AND OTHER FINE ARTS.

BY ANGE MERCIECA-ROSSI, ESQ.

A little more than ten years ago, Mr. Labarte published a book entitled "Description of Debruge's Collection," preceding it by a historical introduction.

In this introduction the author has given information curious as well as useful, in regard to engraving on wood, on ivory and metal, calligraphy, painting on glass, the art of enamelling, the damasqueening, the lapidary art, making beads, &c.

The second edition of this book has been revised and arranged in a more rational and regular plan, and with the probable intention of making a history of manufacturing arts in the middle ages and in the fifteenth century.* I could not enter into the analysis of such a technical book, as its highest merit is this quality.

However, to give an idea of the historical part in which the facts and questions considered by Mr. T. Labarte are contained, I shall point out only the three principal phases which enamelling and painting on enamel have gone through, and the three different ways used to enamel on metal, from which come three distinct classes of enamelling on metallic bodies: incrusted enamels, translucied enamels on carved relievo, and printed enamels.

The invention of incrusted enamels is lost in the darkness of time, and Asia undoubtedly was the cradle of this art. In considering it in its primitive simplicity, it consists in tracing the outlines of the object you wish to represent by means of gold threads standing on the metal, then filling the small spaces with vitrifiable colored matters, and exposing it to the heat of a temperate fire, which vitrify the enamel without fusing the metals.

From India the art of grated enamelling† passed to inferior Asia, then to Egypt: two very precious Egyptian specimens, decorated by this process, may be seen in the Louvre; a small hawk and a rich bracelet.

Have the Greeks practised this art? Indeed it is a very difficult question to be solved; because among the numerous ornaments and bijoux discovered in Greece, there are no grated enamels. Besides it might be supposed with reason, that the taste for noble works performed in that country, with so much delicacy and purity, has had a tendency to supplant an imperfect art, then primitive and rather rough, and which compared unfavorably with the engraved stones of a Pyrgotel.

Those who have seen the gems belonging to the King of Prussia, are able to judge of the great care and value the Greeks attached to them. I should think that of the beautiful Greek remains we possess, no statue reaches in every respect the perfection of gems. The lifelessness and want of thoughts, if I may so express myself, is evident in ancient statues, though they possess qualities enough to have no rivals in correctness of external forms; whereas in gems there is beauty and life which is more worthy of admiration.[*] The Torso at Rome and the broken pieces of the Parthenon at the British Museum, only are excepted by this general rule. Leda holding and kissing the swan in the King of Prussia's collection, is the most striking instance of what I have advanced. Though very small, half an inch, this gem has all the qualities of a regular beauty, and the body of Leda is full of a delicate quivering emotion while she feels the sensation of her love. The expression of her face is not even seen in paintings.

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* I intended to use the words *mediæve* for middle ages, and *cinque cento*, alteration of mile cinque cento, Italian words expressing one thousand and five hundred; but a competent gentleman gave me to understand that these two words were not employed in America. I cannot but be surprised to see the two words *medixeve* and *cinque cento* rejected, while they are very generally used in England on subjects pertaining to fine arts. *Cinque cento* is even employed by Frenchmen, although they have the word *Renaissance*.

† I could not find a more appropriate word to express the French *emeau grille* ou *cloisonne*.

The Roman people had lost every recollection of grated enamels, before the era of Augustus, and Pliny does not mention it at all in his *History of Nature.*

Mr. T. Labarte observes that another kind of enamelling by incrustation appeared in the Celtic-Gaul. Instead of a drawing fixed by gold threads, the artist drew the object on a metallic plate, and hollowed the spaces left by the outlines, so as to be able to fill these cavities with the vitrifiable bodies.

However ingenious this Gallo-Roman art may be, the practice was early given up because in the 5th century it was no more in use. Thus the enamelling abandoned during a time in Europe, did not fall however, into complete forgetfulness. This art was always in favor in the Orient where it had its birth, and it is from the Orient that the Byzantines received again the secret. During the 9th century, this art which perpetuated the taste of refinement, had reached a great degree of perfection in Constantinople, and it was at that time that the Greeks began to trade their enamellings with the Occident.

In 1069, an Abbot of Monte Cassiano, who was elected Pope under the name of Victorius III., undertook to have in his monastery enamellers from Constantinople, and under their direction he established schools, from which, I should think, went out the artists who spread over Italy, the knowledge of this art. Undoubtedly the precious and rare enamellings of which this Pontiff was so fond, had a religious tendency: however, the founding of an enameller's school by the immediate successor of Gregory VII., shows that the taste for *luxury* was general in that time.

Notwithstanding, these Italian enamellers manufactured only grated enamels until the 13th century, when was discovered the enamelling on carving in relievo. The Italians were not the first to practise this art in Europe. About the end of the 10th century, the Emperors of the throne of Saxe attracted to their Court Greek artists, who acquainted the whole of Germany with this process. And it was from Lothoringia, that Suger afterwards obtained enamellers to decorate the Church of St. Denis. It is believed that from the models left by these artists, rose the school of Limoges, which at the end of the 12th century was so much improved, that its productions were not long in eclipsing all those of the Germans and Italians.

In the 14th century, the invention of translucid enamels took the place of the fashion of enamelling by incrustation, then a century after, the discovery of painting with vitrifiable colors on enamel, soon superseded the use of processes employed until that time.

This rapid sketch of the history of enamelling, brings out the importance that this branch of fine-art manufacture had in France during the 11th century, under the Gallo-Roman influence; and two centuries afterwards when the school of Limoges was founded. At least in his volume, Mr. T. Labarte, in following with care and precision the art of enamelling, the improvement of which had so often been interrupted, from the use of the simplest means of fabrication, to the processes which led the enamellers to become painters, has considered entirely the circle of facts and observations which he proposed to himself, to draw up clearly the results, to the learned, to the amateurs, and at the end to the artists disposed to apply the art of enamelling for working pure manufactures.

But this application ought to be made with care and circumspection. The arts are naturally divided in two categories; the fine arts; properly speaking, sculpture, printing and engraving on metals; then those more closely connected with manufacturing, as the mosaic, the enamelling, and all kind of tapestry of high or low warp; mentioning only those that in some cases receive a monumental importance.

These arts which must be called manufacturing, have very circumscribed limits, which cannot be broken without failing; that is to say, when under the pretence of improving them, you require from the processes to produce more than they can; the art is perverted first, and afterwards destroyed.

It is the case with the mosaic art. When you leave out its character of greatness, accompanied by roughness which strikes and commands admiration, while you view from a short distance the most ancient works of this kind in Italy, the mosaic art becomes common and rough; because by nature it does not admit of reproducing the delicacy of outlines, the contrast of colors which belong only to oil and fresco painting. To eliminate from this art what is strong and harsh in its greatness, will be the same if you cover with the elegant dress of a fifth-avenue lady, a handsome peasant with stout limbs, with complexion tanned by the sun, and having features and demeanor, yet, showing a wild pride, proper to the character of her imposing beauty. Undoubtedly I admire the singular industry of the mosaists, having transferred with colored stones, many paintings of the great masters, which adorn the interior of the Basilic of St. Peter of Rome; but these noticed exceptions do not alter the fundamental law, the mosaic art being particularly applicable to ornamenting certain parts of monuments, as the under-basements, the vaults and floors.

As regards compositions containing figures, we are too far from the primitive simplicity of Byzantines and the Italian scholars, to permit ourselves to go back with the hope of finding out their foot paths. This track is lost, and it is only with the assistance of science and cool reflection, that we can do now, what those simple men, but encouraged by their instinct and assisted by the general taste of the time, produced in their ignorance.

The art of tapestry is certainly less circumscribed than the mosaic, still it has its limits which the manufacturing progression transgresses. One of the greatest source of failure with those engaged in tapestry, results from the attempt to rival paintings. On the tapestries manufactured in Flanders at the beginning of the 16th century, the effort was to re-produce drawings from the cartoons given by the great masters. The colors of the objects was rather slightly indicated, and the art of coloring, applied to the whole part of the composition, was then so little improved, that the embroideries of dresses or furnitures woven in gold or silver, produced by their brilliancy a contrast quite discordant with the usually severe tints of the wool.

Since the last century, the chemists have not ceased to improve the dying of wool, and still these unquestionable advancements (if they are considered with respect to the manufacturing industry), they are far from having helped the art in the same proportion.

For a long time the Gobelin manufacturers had been endeavoring to improve the coloring in their tapestries—the peculiar charm of which in oil painting is brilliancy and transparency—two qualities which it will be impossible to obtain with dyed wool.

Why that obstinacy of reproducings where the effects of *chiaro-obscuro* predominate, when there are skilful painters, who can give to the manufacture, compositions simple in lines and issue, gay and agreeable to the eye; and the coloring performed without pretention, will be less altered by the inevitable variation of colors of the tapestries, and the stately scenes in which the color-painters overcharge their paintings by shadows and half tints, for the purpose of giving more brilliancy to some luminous point of the painting?

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[*] These opinions seem to controvert what has been generally admitted for many centuries in regard to the beauty of ancient art. But if I am ready to follow in History, for instance, a statement which I am for want of proofs unable to reject, and of course compelled to accept, it is not the same, while I have before me the ancient art, which enables me to make my own observations. The expressions *lifelessness* and *want of thoughts on ancient statuary* as strange as they may be found, will not probably hurt the feelings of many, when I shall be able in another article, to describe the influence of Christianism on Fine Arts. However, I have on my side the best English and French critics.

Why not submit to the necessity, and not strive always against material difficulties which cannot be avoided, instead of satisfying totally the art in abjuring results that the process employed is inadequated to obtain?

However, all vain exertions find their explanation in these words —"the love of difficulty surmounted;" a kind of feverish passion that possess artists as well as those for whom they work. For instance, those who admire the mere tapestry, do not consider the worth of the original composition, nor the relative and extraordinary perfections of paintings in wool; but what strikes them is, that the workmen who execute tapestry, are performing on the reverse hind part of the canvas, and do not see the result of what they are doing. This kind of admiration is only excited by productions which are the result of a species of mechanism. In the true works of art, the surmounted difficulty ought not to be considered at all; it is the business of the artist to conceal as much as he can, the exertions he has been making in the silence of his studio.

The enamelling more than the mosaic and the tapestry art, is under the tyranny of the materials that must be used. Thus the idea of difficulty that must be overcome to obtain grated enamels, either translucid, or painted, disposes the spectator to be indulgent in consideration of the result, which indulgence is augmented in proportion to the supposed obstacles surmounted to secure the effect.

The art of enamelling is applied especially with great success in embellishing jewelry; it is the most commonly and happily used art that has been practised from the remotest antiquity to our day.

Considering all kinds of enamelling where there are compositions with figures, they are certainly precious to the history of art, when they are examined with a scientific point of view, but we must confess that in general they afford very little satisfaction to the eye and taste of the artist. The difficulty of controlling according to the will of artists, the rigid metals and bodies in fusion used in these works, is very startling, and now again the idea of surmounted difficulty pre-occupies the mind so much, that that of art vanishes almost entirely.

Certainly the old enamels are curious monuments; and the most interesting of all, because of its antiquity as well on account of its execution, is the famous *Pala d' Oro* ornament in gold of the altar of St. Marco at Venice; a very considerable work of large dimension, and containing a great number of sacred subjects. Well it is a bijou, but a bijou which by its dimension, by the whole composition which it represents, by its antiquity, and its coming from Constantinople, gives it the importance of a veritable monument.

In this volume, Mr. Labarte seems to have used very cleverly, much archeological knowledge on the material means of enamelling during the middle ages and the 15th century. This subject upon which successive researches will undoubtedly throw more light, can, however, be considered according to what the known monuments have taught us, as having been pursued to the bottom and with true sagacity.

It is a work which fixes clearly the state of knowledge we obtained up to this time, on the history and practical use of one of the most ancient manufacturing arts. If, as I should suppose his intention is to study with as much care the history of the other manufacturing arts, the union of these monographies will form a complete whole, composed of curious researches for the learned, and of interesting information for the artist.

Cyanide of Mercury.—Prepared by saturating dilute hydrocyanic acid with binoxide of mercury; evaporate and crystalize. This compound should be transparent and totally soluble in water. This solution, on the addition of muriatic acid, evolves hydrocyanic acid, known by its smell, and a glass moistened with a solution of nitrate of silver, held over it, gives a deposit soluble in nitric acid.

From the London Art Journal.

ON ENAMEL-PAINTING.

BY CHARLES TOMLINSON.

[*Enamel*, properly so called, is a glass rendered opaque by means of the hydrated oxide of tin (stannic acid); and *enamel-painting* is the art of painting in vitrifiable colors on a ground so prepared; but, as *enamel colors* and *vitrifiable colors* are usually taken as synonymous, we shall, in the following papers, take enamel-painting to mean the art of producing designs in vitrifiable colors on a prepared ground of porcelain, earthenware, glass, or metal.]

An artist in oil and an artist in enamel were one day discussing the well-worn subject of the cleaning of the national pictures. "My pictures," said the enamel-painter, "never want cleaning; theirs is a perennial youth.—"But," retorted the other, "they crack in the fire, or come out warped or flawed, and produce *fata morgana* landscapes."—"Not now," replied the enamel-painter, "we know how to fire our work better than they did formerly. Now here is a picture that has been five times through the fire, and it is neither cracked nor warped." The oil-painter examined it attentively, admitted its merits as a work of Art, and returned it with the remark, "There is a flaw in it." The other heaved a sigh, and made some remark about people having sharp eyes.

This little incident may serve as an exponent of the strength and the weakness of enamel-painting. It is quite right the enamel-painter should prefer his branch of Art to any other branch, or even to the parent stem; for such we must consider oil-painting to be, even though it be objected that the children are older than the parent. No progress can be made without enthusiasm; and we are disposed to look kindly on even the vagaries of a man whose heart is in his work. The dancing-master, who could not understand how the prime-minister, William Pitt, could be a great man, since *he* could never make any-thing of him, had his soul in his profession: so had also an acquaintance of ours, a teacher of the Spanish guitar, who claimed for that feeble instrument a rank above that of the pianoforte, because the *slur* could be so much better executed on the one instrument than on the other. Doubtless the strength of enamel-painting lies in its durability. Of course, in estimating this valuable property, we do not take accidents into account; for the disasters of fire and the no less terrible disasters of clumsy housemaids, cannot be said to have any thing to do with the durability of the painting, how ever much they may limit that of the article which it adorns. Nor can we take into account the carelessness of the owner, such as we have lately witnessed at the country-seat of a celebrated collector, where costly specimens of Sèvres, Chelsea, and Bow, were arranged, on edge, on small unsafe-looking shelves and bracket attached to the wall, without cover of any kind. It appeared as if the slamming of a door, or a high wind, to say nothing of the daily cleaning of the room, would be sufficient to destroy unique specimens which could never be replaced. Nor can we take into account the calculation of the South-American gentleman, who was accustomed to estimate the shock of an earthquake by the amount of crockery destroyed. Accidents then apart, there is absolutely no limit to the durability of an enamel-painting. Provided the specimen pass through its various fiery ordeals unscathed, it is immortal. It may witness the slow but sure decay of the canvas and the paper; Rubens or Velasquez may become dingy or worn, and want cleaning or restoring; your Wolletts and Stranges may become yellow and brittle, and past hope of cure: while the enamel-painting alone has imbibed the *elizir vitæ*, and is superior to the ordinary accidents of mortality. Damp walls and smoky rooms affect it not; dust may sully its fair face, but a wet sponge will renew its radiance. It does not fade nor crack, nor does its surface scale off. The *amatorii* of the majolica-ware still perpetuate the names, the dresses, and the charms of "the fairest of the fair" of their day; the snow-white enamel of Lucca della Robbia still continues to dazzle us; and the *pieces rustiques* of Palissy charm us with their fresh quaintness; for even quaintness is fresh when the fields, the woods, and the streams have lent their inspiration to it.

Conceding, then, to the enamel-painter whatever advantages he may claim for his art on the score of durability—admitting that this is the strong point of the art, let us now say a few words about what we said was the weak one, or rather *one* of the weak ones; for enamel-painting has other weaknesses besides that of crazing or cracking in the furnace, or warping, or forming bubbles or numerous minute pits, flaws, or discolorations. Our friend, the enamel-painter, states that productions of this kind do not crack or craze in the fire as formerly. That statement does not agree with our experience. A few years ago, on visiting the Royal Porcelain Manufactory at Meissen, near Dresden, we saw a slab containing a beautiful group of roses which had just been taken out of the fire cracked in two pieces, and warped. Such accidents are far from being rare, although much less frequent than formerly. But what shall we say to the multitude of minor accidents to which the work is subject during the firing, any one of which is often sufficient to ruin in a moment the labor of weeks. The light which chemistry has thrown upon the art has revealed the causes of most of the ills to which the enamel is subject: others can only be avoided by practical skill, which can neither be taught nor transmitted: others, again, are still unexplained, and, as ignorance and superstition are twin sisters, the artists fall back upon the fancies of the old enamel-painters, and declare the cause of failure to be in the air, or in the breath of the lookers-on, and they forbid the approach to the work of any one who has been eating garlic or taking blue pill.*

The palette of the enamel-painter is the Sahara of Art—dry, cheerless, and discouraging, and a furnace in the distance. The various metallic oxides ground up with essential oils, which form the pigments, give little or no promise to the untaught eye of what they will be when they have passed through the fire. Before that process they are absolutely hideous, and as the artist so carefully and tenderly lays them on, we see indeed the form of a group of flowers, or of the human face divine, but we turn with disgust from the dark lines and patches which seem to be a mockery of Art.

In an oil-painting it is positively delicious to watch the proceedings of a skilful artist—to see the brightening colors grow into the poetry of form, and to draw cheerfulness and encouragement from every touch: in fact we see *progress*, which always inspires cheerfulness. In the enamel-painter's work the progress is not apparent. He appears to be working in the dark—groping after effects—enjoying nothing of the present, but addressing himself, as it were, to the posterity which lies on the other side of that purgatory which is to try his work by fire. And such is the tentative nature of the process, that this fiery ordeal is merely an elaborate method of taking a proof impression, to enable the artist to touch and retouch—to fire again so as to get another proof; and yet a third, a fourth, a fifth time must the work be passed through the dangerous Gehenna, and at each trial the work is subject to a multitude of accidents which may deteriorate, deface, or ruin it; which accidents we will now briefly consider, in order to show that our artist's boast of the efficacy of his fire insurance requires at least some modification.

Considering that the lowest heat of the muffle in which the colors are vitrified is about 1100° Fahr., and that some colors require as high a temperature as 1850°, we may readily suppose how difficult it is to regulate the furnace. The most successful method of proceding is to begin with a low heat, to raise this rapidly up to the maximum, and as rapidly to let down the furnace. All notions of economy of fuel must be sent to the winds —what is wanted is a fierce, but short heat. A moderate but long continued heat may produce *de*vitrification of the enamels, wherein the elements of the flux recombine in a different manner, and produce an opaque substance known as *Reaumur's porcelain.* If the temperature be carried too high, the more delicate colors, such as the roses and the greys, become faint or disappear altogether, while the blues, the greens, and the blacks remain. On the other hand, if the maximum temperature be too low, the colors come out with that peculiar creaminess and glossiness which belong to this art; they remain dull and lifeless. By long experience, some artists estimate very correctly the proper temperature by the color of the fire; but the most usual method is by means of *watches*, or small slabs of porcelain bearing some trial color: these are introduced, from time to time, into the muffle, by an opening made for the purpose, and the indications afforded by these watches, on being withdrawn, show how the vitrification is going on within. The trial color usually selected is the carmine produced by the purple precipitate of Cassius. This acts as a useful exponent of all the other colors employed, and varies considerably in tint, according to the temperature. By arranging, therefore, a scale of temperatures corresponding with a scale of tints, a tolerably accurate thermoscope is produced. A third method of judging of the temperature is by the expansion of a bar of fine silver, nearly eight inches long, introduced into the muffle, and connected with a graduated apparatus on the outside. Such is *Brongniart's pyrometer*, which has long been used with good effect at Sèvres.

But supposing the heat of the fire to be well regulated, there are many causes, slight and scarcely to be appreciated, which render it uncertain whether the desired tint will be obtained. With so delicate a color as the purple precipitate of Cassius, the method of porphyrisation with water or with oil, a little more or less finely; the difference of touch of different artists in laying on the same color,—will produce differences of tone, although the other circumstances of firing, &c., may not vary.

The kind of fuel employed for heating the muffle has an influence on the colors, for whatever precautions be taken, it is scarcely possible to prevent some of the products of combustion from reaching the inside. The smoke of common coal is most disastrous, spoiling all the colors; wood appears to act injurously in consequence of the pyroligneous acids which are developed. Charcoal is less objectionable, although the carbonic *oxide*, rather than the *acid* arising from it, appears to be a source of some danger. Coke has also the grave objection of producing sulphurous acid. So injurous is an acid in the muffle that it is necessary to wash thoroughly all the reds procured from sulphate of iron, in order to get rid of the least traces of acid. It is also stated that a muffle in which couperose has been calcined cannot be used for the firing of the colors.

Another source of danger lurks in the oxide of lead, which is absolutely required in the preparation of certain colors, but is injurious to the development of some others. The fixed alkalies used in the composition of the glaze may also react on the coloring oxides, especially when the muffle attains its maximum temperature. The oxide of chrome is peculiarly liable to this defect, the green intended to be produced becoming yellow. So also the oxide of tin used in some glazes imparts its own opacity to the colors. Nor is the choice of the kaolin—the canvas of the enamel-painter—a matter of indifference, some kinds being more favorable to the colors than others. There are even some kinds of kaolin which are positively inimical to certain colors; thus the kaolin of Ebreuil will not allow any color derived from gold to be developed.

The oxide of lead, the potash, and the soda, may not only act injuriously on the contiguous colors by contact, but those oxides at certain temperatures become volatilized, and may thus affect injuriously every color in the muffle. Vapor of water, if present, appears to act mechanically rather than chemically; but we have heard of a curious instance of the vapor arising from a crowded assembly acting injuriously on the delicate color produced by the purple precipitate of Cassius. Some novel effects of glass-painting, produced by this color, had been used in a church window, and were observed some time after to have faded. On a close inspection, the artist found that one single piece had escaped the general degradation, and that the colored surface of this piece had been accidentally turned out to the weather, while all the other glass had, as usual, the colored surfaces within. Now this delicate color had resisted the rain and the dew, the sunshine and the wind—the pure influences of nature, in fact; while the sheltered portions, exposed to the air which was frequently poisoned by the respiration of human beings and the combustion of lamps and candles, became corroded and spoiled:—a powerful argument this in favor or ventilation.

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* The Abbè Jaubert (*Dictionaire des Arts et Metiers*, Lyons, 1801, article *Peinture en Email*), speaking of the dangers of firing the work, and the causes which lead to its failure, says: "On accuse encore quelquefois la mauvaise température de l'air, et même l'haleine des personnes qui ont approaché de la plaque pendant qu'on la peignoit; c'est par cette raison que les artistes cloignent ceux qui ont mangé de l'ail, et ceux qui sont soupçonnés d'être dans les remèdes mercuriels."

But, to return to our subject, such are the difficulties of enamel-painting that a piece may pass with success through the ordeal of two firings, displaying a good development of colors; and yet after having been retouched and fired a third time, it may come out scaled and crazed. This arises from an unequal expansion and contraction between the porcelain and the colors in consequence of the metallic oxides and the fluxes having been badly compounded. This effect does not belong to soft porcelain, which greedily absorbs the vitrifiable substances placed on it,—and the exemption once led to an ingenius fraud. The art of making the soft porcelain of Sèvres of the best period having been lost, and the best specimens of that period fetching enormous prices, the dealers some years ago discovered a method of giving to inferior specimens the outward appearances of the finest. They filed off the old paintings, and employed skilful enamel-painters to copy and otherwise imitate the works of the best Sèvres artists on the ground thus prepared, and, on passing these spurious specimens through the fire, it was found that they had in their first manufacture absorbed so much glaze that enough remained to come up to the surface and combine with the new enamel colors which were being vitrified. This plan was so successful that the market was flooded with specimens of the best period, and the very richness of the harvest led to suspicion and discovery of the fraud. So excellent are some of these specimens that none but the most experienced dealers can detect them, and even these have been at fault, and have had to apply to the museum at Sèvres, where the models are preserved of every piece that has been executed within its walls.

On another occasion we propose to offer some remarks on the æsthetic principles of the Art, and on the chemistry of the colors employed in enâmel-painting.

From the Jour. of the Phot. Soc.

INVENTION OF THE DISTILLED WATER.

To the Editor of the Photographic Journal.

Birmingham, 109 New Street, March 5, 1857.

Sir,—Will you allow me a small space for the insertion of the following statement?

In the last Number of your Journal there appears a letter from Mr. H. N. King of Bath, claiming the discovery of a method for preserving the sensitiveness of collodion plates by immersion in distilled water. This process was communicated by me to the Birmingham Photographic Society in November last, and for it I had the honor to receive their thanks, and I also advertised it in your Journal. This process Mr. King obtained from me, and so far had a right to do as he liked with it, excepting claiming my discovery and publishing it as his own.

I am, Sir, your obedient Servant,

John Oliver Chapman Phillips.

To the Editor of the Photographic Journal:

42 Milsom Street, Bath, March 17, 1857.

Sir,—In my letter to you in last month's Journal on preserved plates, there is a typographical error, viz. 15 grs. to 47, should be 15 grs. to the 1 oz. of water. Having had a great number of letters making inquiries respecting it, I shall be glad by your insertion of this correction.

My attention also has been drawn to the report of the Birmingham Photographic Society, where Mr. Phillips states that I had written to him for his process and afterwards published it as my own, in an unfair manner to him. His statement that I wrote to him for his process, is correct, I having done so according to the terms of his advertisement; I was therefore surprised to receive a fac-simile of my own. I immediately wrote to Mr. Phillips, stating that the process he sent I had used almost identically for some months past, and had decided on publishing the same in the journals, and as he no doubt found his advertisement a paying transaction, I should not allude to it in any way. I think therefore, that Mr. Phillips has acted in an unfair manner to me, in not stating this, which would have put things in a different shape, as I have used the process upwards of ten months. I am at a loss to know how Mr. Phillips can state that I have published his process, which was according to the report alluded to, read before the Society in November last.

Presuming that Mr. Phillips and myself were both independent discoverers of the process, I find, by a letter from Mr. Sutton, that the same was published in "La Lumière" eighteen months since, so that neither Mr. Phillips nor myself were the first discoverers of the same.

Yours respectfully,

Horatio King.

From the American Druggists' Circular

EXPERIMENTAL NOTES ON GLYCERINE.

BY DR. W. LAUDER LINDSAY, PERTH.

In order to test the nutrient properties of glycerine, Dr. Lindsay tried its effects upon himself, by taking two or three spoonfuls daily for several weeks. He says:

For the space of a month I took two teaspoonfuls every morning in coffee, which I found to be the most palatable mode of using it. My diet and daily occupations were the same as before I began to take it, my exercise, in consequence of protracted bad weather, rather less than usual. The result was a gain of weight to the extent of 1½ lbs. at the end of the first fortnight, and of an additional ½lb. at the termination of the second—in all, an increase in weight of 2lbs. On discontinuing the glycerine, my weight gradually fell; and after an interval of six weeks, during which I have not used it, I find myself 1 lb. lighter than before I began to take it daily. It produced no other appreciable effect. I have tried it is a dietetic remedy along with various articles of food, and in divers combinations. It is so readily miscible with fluids of all kinds, that there can be no difficulty in its administration. The pure concentrated glycerine of Price's Company is too pungently sweet to be used alone or undiluted; and I may here remark that, as a general rule, whether for internal administration, or for external application, it ought to be diluted, the degree of dilution being regulated by the practitioner, according to the purpose for which he prescribes it. I have sometimes sweetened coffee with it instead of sugar. Coffee so made, however, has a somewhat peculiar taste, which might prove objectionable to some fastidious stomachs, but when it is sweetened only partially by glycerine, or when glycerine is superadded to ordinary sugar, the beverage is exceedingly pleasant, and quite free from any peculiar flavor or taste. It might be used daily to a considerable extent, when thus mixed with coffee or chocolate; it is perfectly miscible, and does not betray its presence by floating oil globules or otherwise. In such circumstances it behaves precisely like a syrup. Tea, to which glycerine has been added in a similar way, is much more apt to be flavored by it, but the taste is not likely to be regarded generally as unpleasant, unless it is added to the extent of two or three teaspoonfuls per cup. It also sweetens milk or cream very pleasantly. A mixture with water is very palatable, and is, undoubtedly, its most ready and cheap mode of administration.

I carefully observed its effects, as a nutrient and alterative, in eight patients—four males and four females—to whom it was given in doses of two or three tea or table-spoonfuls daily, for the space of a month.

They were weighed, at intervals, to ascertain their gain or loss of flesh; for I found that apparent physical improvement was not a reliable criterion of real physical growth—that a most marked amelioration in the general health did not always coincide with increased weight of body. All the patients, before taking it, were more or less anæmic, emaciated and feeble: in all, the diet, exercise, and occupations, were otherwise the same. At the end of the month, all of them *appeared* greatly improved in their general condition; they seemed plumper, and stronger, and the countenance, in some, was even ruddy.

The great advantages of glycerine over cod-liver oil, consist in its pleasant sweetness and its freedom from all disagreeable odor; in its ready solubility in, or miscibility with, ordinary fluids; in the absence of the principles, which in animal and vegetable oils so frequently nauseate and purge; and in its solvent and other properties, which render it so useful as a vehicle or basis for pharmaceutical preparations. Its great disadvantage, on the other hand, as contrasted with cod-liver oil, we shall immediately see, is its present comparatively high price. Cod-liver oil frequently produces an acrid burning sensation in the throat: it is extremely difficult of digestion by many stomachs; by others it cannot be borne at all, without generating disagreeable and even serious gastric symptoms; and, in general, nausea and purging are very frequent results of its use. These effects would appear more liable to be produced by the dark-brown than by the pale or colorless cod-liver oils. Many of the vegetable oils have a similar tendency to nauseate or purge, such as linseed, olive, and almond oils. None of these disagreeable symptoms are likely to be produced by the use of glycerine, and have not been produced in any cases which have come under my own observations. Hence it is reasonable to anticipate, that glycerine ought to become a valuable substitute for the ordinary animal or vegetable oils used in medicine as nutrients and alteratives, in the numerous cases in which they are contra-indicated—always, of course, granting or assuming what has yet, however, to be fully proved, that it possesses true fattening properties—that it acts as a food. A substance, which may be considered intermediate in chemical composition and properties between ordinary fats and oils and glycerine, has recently been used to a considerable extent in phthisis as a nutrient and alterative,—as a substitute for cod-liver oil. I allude to the substance called "cocoa-oleïne," or cocoa-nut oleïne, which is obtained by pressure from coco-nut fat or oil, and subsequently purified. It has been prepared by Price's Patent Candle Company, for use chiefly at the Consumption Hospital at Brompton, where it was introduced by Dr. Thompson. It has likewise been tried throughout the country; but it has been found very liable to produce nausea and gastric derangements. For this reason, its use cannot be long persevered in; and, morever, it is expensive compared with cod-liver oil. Thompson found, however, that cocoa-nut oil increased the solids of the blood in the same way as cod-liver oil. It has been objected that glycerine, from its composition, is not likely to be of the same service in medicine, or to have the same physiological effect, as cod-liver oil and other oils. This objection, however, probably arises from mistaken views regarding the active ingredients or principles of cod-liver oil. Dr. Garrod has recently suggested that the last-named oil acts simply in virtue of its oleï, he having found that the margarino, or solid portion of the oil, produced no marked result when administered internally, and that its use could not be persevered in. Chemically speaking, oleïne, as we have already seen, is the olëate of glycerine; and *a priori*, there are more numerous and stronger grounds for believing that the active principle is the glycerine rather than the oleïc acid. Glycerine appears to have been tried somewhat extensively in phthisis as a substitute for cod-liver oil, but the results described are very contradictory. Dr. Crawcour, of New Orleans, used it in cases where the nauseous taste of cod-liver oil rendered it most obnoxious to the patient, and its administration therefore impossible—with such success, that, in the course of a year, it had entirely superseded cod-liver oil in his practice. On the other hand, in "Thomson's London Dispensatory" (1852), it is stated—"The editor, some years since, tried its powers as an internal agent, giving it chiefly to patients in whom the use of cod-liver oil was indicated, and in about the same doses, viz. from one to four drachms. The results of his trials were such as to induce him to put but little reliance upon its efficacy. In some cases it appeared to allay the cough of phthisical patients, but no very marked improvement could be found to follow its use." "All reasons and analogy," says Dr. Garrod, in the review before quoted, "and the little clinical observation yet obtained, are against the idea of its acting similarly to cod-liver oil." I have have had no opportunity of trying its effects in phthisis, either when administered internally, or when applied by the endermic method. But experiments on its use in this protean disease, would undoubtedly serve to dispel the contrariety of opinion which at present exists. It has been remarked to me by those who have tried it, that it does not allay the phthisical cough; nor do we expect that it should, immediately or directly. But it appears to have proved serviceable in other strumous cases. Dr. Stirling gave it in doses of three teaspoonfuls daily, along with one half-grain of quinine, for a period of three weeks, to a delicate, emaciated, cachectic, strumous boy of eight years; the improvement in general health was most marked and rapid. Dr. Deighton, of Clapham, reports marked good effects from its use in chronic gastritis; and Mr. Wilson mentions a case of affection of the mucuous membrane of the stomach, occurring in the practice of an Edinburgh physician, in which it "appears to have worked wonders," in the dose of three tablespoonfuls per day. Dr. Browne of the Crichton Royal Institution for the Insane, Dumfries, has kindly favored me with the particulars of several cases in which he has used it internally—including phthisis, strumous abscess, pulmonary abcess, chronic bronchitis, and general cachexia. In one case a strumous abscess cicatrised rapidly and satisfactorily under its use. In a case of phthisis, where ordinary aliments and remedies were refused or swallowed in too small quantity to support life or health, it appeared for a time to take their place. In other cases, in which it was used internally, the results were inappreciable or nugatory.

From the Liverpool Photographic Journal.

SOME CONDITIONS WHICH INFLUENCE
The Development of the Latent Image in the Collodion Process.

BY F. HARDWICH.

Accelerating effect of certain organic matters.—Organic bodies, like albumen, gelatine, glycyrrhizine, &c., which combine chemically with oxide of silver, and have the effect of lessening the sensitiveness of the film to light, facilitate the development of the image, so that, on the application of the reducing agent, a dense deposit is formed, of a brown or black color, by transmitted light.

In the same way, viz. by a retention of organic matter, may in all probability be explained the fact, that the collodion image developed by pyrogallic acid, although proved by the application of tests to contain an equal quantity of silver, possesses greater opacity by transmitted light, than that resulting from the use of protosalts of iron; and so with regard to the collodion itself, if it be pure and recently prepared, it is liable to give a less vigorous impression than when, by long keeping, a partial decomposition has taken place, and products have been formed which combine with reduced oxide of silver more easily than the unaltered pyroxyline.

Molecular conditions affecting Intensity.—The physical structure of the collodion film is thought to exert an influence upon the mode in which the reduced silver is thrown down during the development. A short and almost powdery state, such as collodion iodized with the alkaline compounds acquires by keeping, is considered favorable, and a contrary structure unfavorable to density. This is certainly the case when the film is allowed to dry before development, as in the process with desiccated collodion, and, to some extent, in the oxymel preservative process.

A development conducted rapidly tends also to produce an image of which the particles are finely divided, and offer a considerable resistance to the passage of light; whilst a slow and

YOUNG BACHELORS SUNDAY MORNING.

Negative by C. Farrand, from a Daguerreotype by J. T. Harrison.

prolonged development often leaves a metallic and almost crystalline deposit, comparatively translucent and feeble.

With certain samples of collodion, it will be observed, the image is much enfeebled by keeping the plate for a quarter of an hour or longer after sensitizing, but before development. This effect is not due to the nitrate of silver having partially drained away from the plate, inasmuch as the plan which has been proposed of re-dipping in the nitrate bath immediately before applying the pyrogallic acid, does not prove a remedy. An alteration of molecular structure may perhaps, therefore, be the correct explanation, and if so, a contractile collodion would suffer more than one possessing less coherency.

The actinic power of the light at the time of taking the picture influences the appearance of the developed image; the most vigorous impressions being produced by a strong light acting for a short time. On a dull dark day, or in copying badly lighted interiors, the photograph will often lack bloom and richness, and be blue and inky by transmitted light.

Development of images upon Bromide and Chloride of Silver.—Of the three principal salts of silver, the iodide is the most sensitive to light, but the bromide and chloride are under some conditions more easily developed, and give a darker image. In the collodion process the difference is principally seen when organic bodies, like grape sugar, glycyrrhizine, &c., are introduced in order to increase the intensity; a far more decided effect being produced by adding both glycyrrhizine and a portion of bromide or chloride, than by using the glycyrrhizine alone.

The intensity of the image affected by the length of exposure.—If the exposure in the camera be prolonged beyond the proper time, the development is usually feeble, and the picture pale and translucent. The effects produced by over-action of the light are particularly seen when the nitrate bath contains nitrate of silver, or acetate of silver, the image being frequently in such a case dark by reflected light, and red by transmitted light—more nearly resembling in fact a photographic print, developed on paper prepared with chloride of silver. When collodion plates are coated with honey, without previously removing the free nitrate of silver, a slow reducing action is set up, which may give rise to the characteristic appearance after development above referred to. Other organic matters besides honey will act in the same way.

Certain conditions of the Bath which affect development.—Attention may be called to a peculiar state of the nitrate bath, in which the collodion image develops unusually slowly, and has a dull grey metallic appearance, with an absence of intensity in the parts most acted on by the light. This condition, which occurs only when using a newly-mixed solution, is thought to depend upon the presence of an oxide of nitrogen retained by the nitrate of silver. It is removed partially by neutralizing with the alkali, more perfectly so by adding an excess of alkali followed by acetic acid; but most completely by carefully *fusing* the nitrate of silver before dissolving it.

Commercial nitrate of silver has sometimes a fragrant smell, similar to that produced by pouring strong nitric acid upon alcohol. When such is the case, it contains organic matter, and produces a bath which yields red and misty pictures.

Nitrate of silver which has been sufficiently strongly fused to decompose the salt, and produce a portion of the basic nitrate of silver, exhibits great peculiarity of development, the image coming our instantaneously and with great force. This condition is exactly the reverse of that produced by the presence of acids, in which case the development is slow and gradual.

In summing up the different conditions of the nitrate bath which affect the development of the image, as many as *four* might be mentioned, each of which might give a more rapid reduction than the one which precedes it. These are—the acidified nitrate bath—the neutral bath—the bath of strongly fused nitrate of silver—and a solution containing the *ammoniacal* nitrate of silver, which is quite unmanageable, and produces an instantaneous and universal blackening of the film.

Greater intensity of image is commonly obtained in a nitrate bath which has been a long time in use, than in a newly-mixed solution; this may be due to the minute quantities of organic matter dissolved out of the collodion film, which have an affinity for oxygen, and partially reduce the nitrate of silver; and partly also to the alcohol and ether which accumulate in an old bath, producing a more short and powdery structure of the film.

From the Jour. of the Phot. Soc.

DESCRIPTION OF IMPROVEMENTS IN THE STEREOSCOPIC CAMERA.

BY JOHN LANG.

The improvements consist, 1st, in employing a modification of the principle of the cyclograph to produce the convergence of the lens to the same point in both pictures; 2ndly, in adapting the camera to the dry collodion process by making the chases, or dark slides, of such a construction that they may be very portable, and that a number of them can be speedily made of Bristol board.

The principle of the cyclograph, a well-known instrument used in marine surveying, is, that if a jointed ruler A B C (fig. 1), move along two fixed points D and E, any line F G attached to it will always be directed to a single point, the distance of that point depending on the degree to which the ruler A B C is bent. This form of a slide, however, would have the disadvantage, if employed in a camera, of requiring the rulers to project inconveniently beyond the sides of the box. But it happens that if the ruler A B C be stationary while the two points D and E connected together move along it, any straight line H I attached to them will always be directed to a point in a cuspid figure, the distance of the cusp depending on the degree to which the ruler is bent. When the motion is only of moderate extent, such as greatly exceeds the wants of a slide for stereoscoping, the points in the cuspid figure varies so exceedingly little, that, practically, it may be considered to be quite stationary. By modifying the construction of the cyclograph, therefore, in this manner, photographers may have a slide having the advantages of accuracy and the utmost simplicity of construction, and capable of being cheaply made and very quickly adjusted.

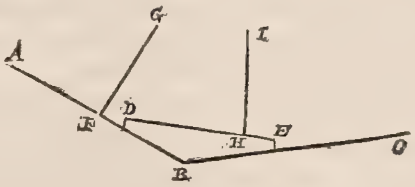


Fig. 1.

The form of the slide, (fig. 2), A B is a board fixed to the tripod by a universal joint in the ordinary manner; C D is a rule fixed permanently to the board A B; D E is another rule turning on a pivot at D and having a screw at E working in a slit in the board, and by which the rule D E may be fixed so as to be in a line with C D, or to make an angle with it. The head of the screw comes through to the underside of the board, and both the rules have their edges bevelled as fig. 3. G H is another board a little longer than the camera; on the under side of it are fixed two small bits of wood, I and K, and also a piece of wire L acting as a spring. The corners of the bits I and K and the ends of the spring L, are formed so as to fit the bevelled edges of the ruler. There are two projecting nails near A and B to prevent the slide G H falling off. This is the complete slide;

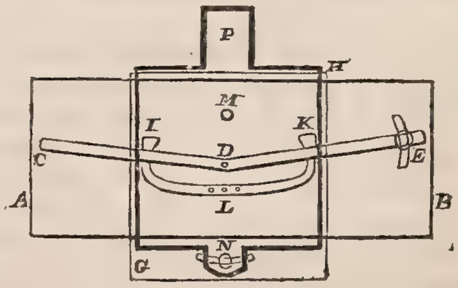
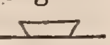


Fig. 2.

Fig. 3.



but it is of much advantage to have the camera moveable on the board G H by means of a centre nail at M, and capable of being fastened at any desired angle by means of a slit and screw at N. The camera is represented by the dark line, and P is the lens.

This small and simple apparatus gives great facility and certainty to the adjustment of the stereoscopic pictures. It is used in the following manner:—

1st. Slip the camera to the end of the board A; focus it, and observe what point of the principal object in the intended picture falls on a minute mark made permanently on the focussing-glass.

2ndly. Slide the camera to the other end,—move the rule E until the same point again falls on the mark on the glass. Clamp the rule by means of the screw. Then, to whatever other part of the slide the camera be moved, the same point will always fall on the mark, and the two pictures, whatever *stride* be chosen for them, will always be correctly adjusted to one another.

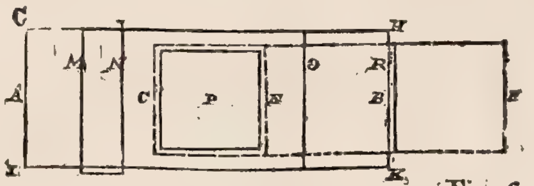
3rdly. If thought advisable, move the camera round on the pivot M and clamp it by the screw N, at such a position as may be judged best for giving the principal figure a more desirable position in the picture. This last adjustment will not interfere in the least with that previously made.

4thly. The camera being how adjusted, the length of *stride* which may be given between the two pictures is quite at the option of the artist, as the two pictures will be rightly adjusted to one another at whatever two positions in the slide they may be taken.

5thly. By fixing a scale at E, the distance of the principal object may be read off, and for those stereoscopists who make the *stride* depend on that distance, this is a considerable advantage.

The portable chases or dark slides, a dozen of which, each containing a prepared glass, may be carried in the pockets, are made of Bristol board.

Fig. 4.



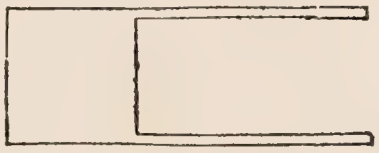


Fig. 5.

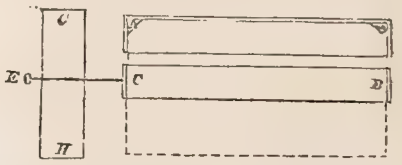
Fig. 6.

A B (fig. 4), is a case of Bristol board about $\frac{1}{8}$th of an inch broader, $2\frac{3}{4}$ inches longer than the glass plate, and $\frac{1}{4}$ inch wide. A bole, P, the size of one of the pictures, is cut in the middle of the box. A piece of Bristol board of the shape of figure 5 is pasted on the same side of the case; then another piece of board of the shape of A B, fig. 4); and with a hole equal to P, is pasted above that. By this means the upper side of the case is 3-ply thick except the part C B, into which a card is pushed; the card forms the sliding lid and should be a little longer than C D: when this card is drawn out to the position E F, the hole P is opened; when it is pushed in to the position C B, the hole is closed. The edges of the case G H and I K have each two strips of board pasted on them so as to be 3-ply thick. The end K H is closed by two plies of card. Finally, two pieces of card, M N and O R, are pasted on; the former of these passes completely round the case. In this manner the front and sides being 3-ply thick, make the case so rigid as to be quite able to resist any rough usage it is likely to meet with, while at the same time the back, being only 1-ply thick, is flexible.

A lid, 1-ply thick, of board is made to fit on the end A, and when in its place, comes as far as the edge of the ply M N. This lid being on, the inside of the case is quite dark, every opening having a bend (termed by workmen a *return*) except the end of the slide at B. In order to obtain a *return*, then, the end of the card is parted by a knife, and a small strip is glued on so as to spread out the halves. The case is now perfectly light-proof, and a prepared plate may be securely kept in it.

The means of introducing the prepared glass without risk of scratching it, and of giving it the motion required to allow the stereoscopic pictures to be placed side by side, are as follows:

Fig. 7.



A B (fig 7) is a piece of thin Bristol board about an inch broad, having one side and its ends bent up so that the distance A B is just the length of the glasses. At the corners the side and end folds overlap one another, and two plies of board are glued on them so that the corners A and B are 4-ply thick, a recess being left under the overlapping, roomy enough for the very thickest glass. Two slips like A B are required for each chase. A piece of very thin sheet brass about an inch broad, C D, has its ends, C D, bent up, a bit of brass wire, C E, is soldered to C and passes through a hole in the lid of the chase G H, and a small button is soldered to the end E. The length of the wire ($2\frac{1}{2}$ inches) determines the juxtaposition of the two pictures. A slip of paper is glued on the brass.

These pieces are used in the following manner, and the manipulation may be mastered at one or two trials, which may be made with unprepared glasses. The glass is supported on the points of the fingers of the left hand. The side pieces are first slipped on its edges; then the brass with the lid attached. They are then transferred to the right hand, and, the point of the forefinger of that hand supporting the brass piece, the whole is thrust into the chase and the lid is pushed on. By laying hold of the button E, the prepared glass may now be moved to either end of the chase, and in both positions there is a *return* preventing the light from entering by the sides of the wire.

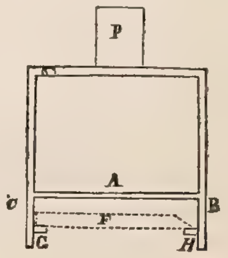


Fig. 8.

The camera for these slides is represented in figure 8. P is the lens tube of the ordinary construction. A is a piece of wood stretching across the box and having a hole in it a little larger than one of the pictures. F is the focussing-glass in a frame bevelled off at the right end, and acted on by two springs G and H, which push it forward towards A. In the sides of the box there are two holes at B and C just large enough to admit the chases. After the camera is focussed and adjusted, one of the chases is introduced at B and is pushed forwards, the focussing-glass retiring to give it place. The ply of board at N (fig. 4), prevents it getting farther than its proper place. And the springs G and H acting on the focussing-glass, and through that on the *thin* back of the chase, not only keep it tight to the board A, so that there is a return by means of the edges N and O, (fig. 4), but also keep the thin slips and the prepared glass itself exactly up to the right distance from the lens, which is determined by the thickness of the 4-ply corners A and B.

The slide E F being then drawn, the action of the lens is admitted to the plate; and the successive positions of the plate are brought into place by the button E.

This description may appear a little intricate, but the construction of the slides is in reality simple, and can be readily accomplished by any photographer armed with a pair of scissors and a glue pot, except the brass drawer and button. I have described these exactly as I have made them, and found them to act well, but by lengthening the chase itself half an inch in order to afford room for the strength necessary, a drawer of Bristol board might easily be substituted for the thin brass plate.

I conceive that it is scarcely necessary to speak of the great advantage given by these dark slides, each holding its own glass separately, weighing little (2¾ ounces each), capable of being introduced into the camera with ease, and very secure from light. But I may add, that although they were contrived expressly for the dry process, they apply equally well to the wet one; indeed, I find them so very convenient for this purpose that I have altogether disused the other cameras.

From the American Druggists' Circular.

ON HYDROMETERS

For Estimating the Strength of Alcohol, Whiskey, &c,

As there is considerable difference of opinion in regard to the strength of alcohol, whiskey, and other spirituous liquors sold in our market, I propose to try and explain the same in as clear a manner as possible, and in so doing will first examine the principle of Fisher's Hydrometer, the one almost altogether used in our market (Baltimore), and before I conclude I think it can be plainly demonstrated that the above instrument cannot be relied upon for high proof liquor. This instrument is so constructed that by a simple calculation any one familiar with, can easily tell how much proof whiskey is contained in a certain cask, the contents of which is known. In doing so he calls 85 degrees proof, which means 50 per cent. Alcohol and 50 per cent. water by volume (not by weight as the London Hydrometer), and every degree above 85 means one gallon water added to every 100 gallons of such liquor would make proof as per example: suppose the barrel under examination contains forty gallons, and the degree shows fifteen above P, which would equal 100 F H, now fifteen gallons water added to 100 gives 115 of P. If 100-115 40-46 gallons of 85 degrees P whiskey, or in other words, 46 gallons of a liquor of 50 per cent. alcohol. Again, suppose the hydrometer shows 85 degrees above (double the starting point, mark this particularly), which added to 100-185, or P. 100-185 40, 74 gallons P.

As this is intended for absolute alcohol, being double the starting point of 50 per cent. it must surely take 100 gallons water to make 50 per cent. liquor instead of 85. Hence this instrument, though correct in low degree whiskey, cannot be relied upon to estimate the true amount of proof liquor in strong alcohol. It will be seen by this, that if a person had 100 gallons of absolute alcohol to be sold by Fisher's instrument as proof, he would lose fifteen gallons of proof, and in the same proportion down. The error, if any, arises in this way, starting at 50 per cent. and ending at 93¼ per cent. alcohol, the strongest alcohol, obtained by ordinary distillation, and calling this absolute, alcohol, therefore the first 50 per cent. is divided into 85 degrees, and the 43¼ into 85. The other instrument, known as the New York Hydrometer, is the next one I propose to examine, and think can prove its correctness for either high or low degree liquor. The starting point of this is O or P, which agrees with Fisher's 85, or equal volumes of absolute alcohol and water (50 per cent.), and ends with 100. Let us take the same example as before. It indicates 15, above proof 15 added to 100-115 of P, 100-115 40-46 gallons P as per Fisher's; again, 100 over P or double the starting point—200 gallons of P whiskey.

A cask containing 40 gallons of 100 degree equals 80 gallons of 50 per cent. or proof whiskey. Hence arises the loss of high proof liquors by the New York hydrometer when reduced by Fisher's hydrometer. The third instrument, and by far the most simple in its construction, and correct in indications, is the United States standard, which is described as follows: They are generally made of glass, and have no degrees connected with them, but divided from 0 to 100, from water to absolute alcohol, and each graduation representing one per cent. alcohol. Therefore 50 on this scale equals Fisher's 85, and the New York O or P. Therefore 40 gallons of alcohol of 100 U. S. would take 40 gallons water to bring to proof, or 50 per cent. As Fisher's hydrometer stops at 93¼ per cent., of course, his instrument would be of no use in testing such alcohol, unless by adding the deficiency of 15 degrees, already shown. Therefore I say parties selling high proof liquor as proof whiskey reduced by Fisher's scale lose the proportion indicated above.

I have found some large dealers in alcohol entirely unacquainted with the principles of the New York hydrometer in ascertainining the per cent. of alcohol by it, and as it is no simple I will give the rule for the same: As each degree represents ½ per cent alcohol, all you have to do is to half the number of degrees as indicated, and add to 50. Suppose the hydrometer shows 60 degrees above P, therefore 30 being half added to 50 shows 80 per cent. alcohol. The rule holds good throughout, but not with Fisher's scale except in low proof, when each degree equals very near a ½ per cent. The U. S. instruments have a thermometer in the bulb to regulate the variations in temperature, and are generally imported from Berlin, and for sale, having also the degrees marked with the corresponding per cent., which is a decided improvement on the U. S., although as one per cent. equals two degrees, it is easy to calculate any degree of whiskey when the per cent. is obtained.

PHINEAS.

From the Liverpool Photographic Journal.

ON THE CHEMICAL, ACTINIC, AND MECHANICAL

Requirements for the Production of a Satisfactory Dry Collodion Process.

BY MR. BERRY.

At the a meeting of the Liverpool Photographic Society held February 17th, I laid before the members an extensive tabular series of the chemical constitution of the various organic compounds which have from time to time been employed in photography, and drew attention to the fact that carbon, hydrogen, oxygen, and sometimes nitrogen, in various proportions, were the whole of the elements present in bodies of the most opposite characters, as lignin, pyroxylin, wax, honey, sugar, gallic, pyrogallic, acetic, citric, and tartaric acids, alcohol, ether, &c., &c. That the ultimate chemical formulæ of very many of these gave us no data upon which we could construct a successful process, even theoretically, but that these various compound bodies had properties so characteristic and marked, that we were enabled to apply the greater number to a useful purpose, with a certain expectation that the desired end should be accomplished.

I took the liberty of propounding a series of questions to the meeting, bearing as much as possible upon any phenomena observed in the calotype and albumen processes, and I would lay before you the information thus observed, bearing more or less upon the elimination of a dry collodion process, as the points to which the desires of photographers are tending in the opening of the present year.

From the investigation of last meeting it would appear—

1. That calotype paper in all its varieties, unwaxed, could not be kept in an efficient state for many days.

2. That wax-paper calotype does keep for a much longer period under certain circumstances; but experience has proved that operators produce their best negatives on recently prepared paper, and preferably, if possibly, upon sheets which have only become surface dry.

3. That albumenized glass plates do deteriorate by keeping, especially in sensibility.

4. That the processes which are the least sensitive in the camera, are, as a general rule, those which retain their sensibility longest after their preparation.

5. That as far as the foregoing formulæ have been tested, decomposition of the sensitive surface has been in a great measure independent of atmospheric influences.

6. That from the chemical constitution of the different organic

compounds used in the preparation of photographic preservative processes, no certain data could be obtained as guide in the search for a rapid and efficient dry glass process, possessing an approximation to the wet collodion.

At the risk of being somewhat tedious, I will now enter into detail upon the examination of the inorganic chemicals employed, and I am the more emboldened so to do as I hope to present them to you in a novel point of view, both as regards their chemical reaction and also their photographic application.

To compress our subject within reasonable limits, I shall consider only the ordinary silver compounds in common use:

Chloride of silver..108 Ag + 36 Cl = 144
Iodide " 108 " + 126 I = 234
Bromide " 108 " + 78 Br = 186
Fluoride " } Comparatively useless.
Cyanide "

There are two different conditions common among us for the production of photographic images, first, where the sensitive medium is exposed to light until the image is visibly impressed, as in sun printing, and, secondly, by the impression of the latent image to be rendered visible by the after application of a developing, *i.e.* a reducing, agent.

I believe that all the silver preparations are, under favorable circumstances, capable of receiving this latent image, but practice has restricted us to the iodide and bromide especially, or in some instances a combination also of the chloride, as in the modification of calotype.

I now take the three silver compounds before enumerated, and describe the peculiar chemical and actinic properties appertaining to each.

CHLORIDE OF SILVER.—A WHITE POWDER.

If we take nitrate of silver dissolved in water, and also chloride of sodium, barium, or ammonium, or any other soluble chloride, likewise in a state of solution, and bring the two liquids together, by an interchange of elements we shall have as our result a white curdy precipitate, which is chloride of silver, insoluble in nitric or hydrochloric acids, partially soluble in chloride of sodium, very soluble in hyposulphite of soda, and some other salts. If we take chloride of sodium (pure common salt), and nitrate of silver, we shall have the following equation:

$AgO.NO_5 + Na\,Cl = Ag\,Cl + NaO.NO_5$: the result of the action being

Chloride of silver, insoluble.
Nitrate of soda, in solution.

Leaving the minute details of its properties to the different works on chemistry, I will only instance the following:—

1. That under all conditions it is discolored by light, most rapidly in presence of organic matter and a soluble silver salt, but in all cases no amount of washing prevents the blackening action.

BROMIDE OF SILVER. A YELLOWISH-WHITE POWDER,

Produced by an analogous process. Take for example

Bromide of potassium....................118
Nitrate of silver........................170

yielding

Bromide of silver.......................186

In many works of repute on chemistry, the bromide of silver is declared to be insensitive to light, and Fox Talbot originally fixed his camera pictures by wetting with a solution of bromide of potassium. Hunt also in his treatise on light, reports a series of experiments showing apparently very anomalous results. He employed a primary wash for paper of bromide of potassium of different strengths, and sensitized with nitrate of silver, also varying in quantity, the strongest solutions frequently being those yielding the slowest results; moreover, in calotype and waxed paper processes, the addition of a bromide to the iodizing solution has been by some considered as an accelerating, by others a retarding agent, and its power of rendering the non-actinic colors disputed. My own experiments have proved to me that bromide of silver, like the chloride, will be discolored by light in all similar circumstances and with far greater rapidity.

IODIDE OF SILVER. A PALE YELLOW POWDER.

Prepared as in the former instances by double decomposition. Solutions of iodide of potassium and nitrate of silver, by mixture yield iodide of silver and nitrate of potash.

Iodide of silver has been unquestionably the most important compound of that metal employed in photography, more especially in the camera processes; its peculiar properties are very definite and distinct from the chloride or bromide. If we pour a small quantity of solution of nitrate of silver into one of iodide of potassium in excess, or, if we soak a piece of paper in a weak solution of nitrate of silver, and then in a strong solution of iodide of potassium, there will be a deposit of yellow iodide of silver on the paper, totally insensitive to light: and iodized paper thus prepared would not yield a latent image. If, on the contrary, we soak the paper in a weak solution of iodide, and then in a strong one of silver, the film will be excessively sensitive, and an exposure for a fraction of a second to sun light would yield an intense black color on the application of gallic acid.

From the foregoing it has been averred that there are two iodides of silver; one being insensitive. While I would not deny the possibility of the truth of the assertion, I think the following facts go far to invalidate the theory of two iodides.

If we tear the last named paper in two before it has been exposed to light, and float one piece on water once or twice changed, so as to wash away *all* the free nitrate of silver, it will become insensible to light, while the unwashed portion is rapidly impressed; thus proving that pure iodide of silver is unacted upon, and that the presence of a soluble silver salt is requisite to render it available for our use.

This fact was made use of by Fox Talbot in his first publication of his calotype process, in his directions for making iodized paper.

It is requisite at this point to examine the theories extant as to the nature of that mysterious impression produced by light on certain substances, the existence of which is only made known to us by a developing agent, that is, a chemical that has the power of abstracting oxygen from the active sensitive medium, and, as a natural consequence, of depositing metallic silver on the image.

It has been asserted that the action of light upon chloride of silver paper has been to set free chlorine, and consequently the sun-impressed image is either a di-chloride or a mixture of chloride and metallic silver; and from this it is argued that the impress of the invisible image is a similar reaction to a very infinitesimal extent, and that the reducing agent carries on the action commenced by light until the impression is developed in all its details and intensity.

The theory of the production of the negative image upon the collodion plate has been thus stated. The collodion film presents iodide of silver in the most favorable state to receive the negative impression. That the atoms of iodide of silver prior to the exposure may be represented as overlapping each other; that the actinism produces a molecular change, not decomposing the iodide of silver, but predisposing it, and, as it were, tending to separate the iodide of silver atoms, leaving them united only at their outer edges; the reaction of the pyrogallic acid on the evolution of the image abstracting oxygen from the water present, the hydrogen thus evolved combines with the iodine of the iodide of silver, thus reducing the silver to the metallic state.

This theory has been denied by many, and with very good reason, from the fact that when the iodide of silver film is copiously washed in water previous to the exposure to light, the addition of gallic acid produces no discoloration except some soluble silver salt be added, thus apparently proving that the iodide of silver is not decomposed, but that the impact of light had imparted some peculiar arrangement of the compound molecules which produces such an effect upon a soluble silver salt in presence of the developing agent, that the whole visible impression is the result of its decomposition. With the iodide of silver alone it is, perhaps, impossible to disprove this, but with the bromide or chloride no amount of washing renders the action of the developer, in absence of soluble silver salt, inert.

I will now apply the results of the above to the dry collodion process.

It is clear that the sole reason why the iodized collodion film, copiously washed, as in the dry processes extant, is not totally insensitive to light, is the almost insurmountable difficulty of removing from the compact film all free silver salts; and that the reason why the dry processes are so slow is because the great bulk of the active sensitive medium is removed. It is here the value of a bromide is manifested. The abstraction of the surplus silver salt has no influence on its sensibility to even the lowest luminous emanations; and by a proper combination of iodide and bromide in the film, it is not only possible but practicable to produce dry collodion plates copiously washed, and filled in with gelatine, albumen, or preferably dextrine, with a small proportion of honey or sugar mixed with it, and perfectly dried, which shall be scarcely less sensitive than the wet collodion plate in its integrity, and possessing the properties of perfect preservation, for possibly two or three months in the hottest season of the year, yielding all the delicate half tones, owing to the large proportion of bromide, and developed with all the facility of the ordinary collodion negative.

I may appeal to many present whether the experimental collodion I have supplied them with, has not verified my assertions; and may, in conclusion, state that the combination, of bromide and iodide I have found most sensitive has been two equivalents of bromide to one of iodide, using a porous pyroxyline, with a maximum amount of alcohol in proportion to the ether and do not know of any other method ensuring the same success employed, and that the haloid salts present shall not be less than six or seven grains per ounce of collodion.*

From the Journal Phot. Soc.

DESCRIPTION OF A MACHINE FOR WASHING PRINTS AFTER FIXING.

BY ROBERT FOX.

[Read at the Annual Meeting, Feb. 5, 1857.]

Taking the hint from a contributor to the Journal recommending the use of sponge in removing the hyposulphite of soda, I have constructed a simple instrument wherein this principle is adopted, and as I believe, in a most effective manner.

Dealing principally in portraiture, the articles I have made is of small size, my prints never exceeding 6×8 inches.

The block on which the print rests while being washed, is of one-inch deal, but made in two pieces placed crosswise to prevent warping, the one above the other, and firmly connected by screws, the heads of which are sunk about $\frac{3}{8}$ths of an inch and covered with wooden plugs secured with marine glue, to keep the water from them and prevent rust. The upper portion is $6\frac{1}{2}\times8\frac{1}{2}$ inches, on which rests a sheet of stout glass of the same size. The under half is $1\frac{1}{2}$ inch larger on all sides. A frame of hard wood 1 inch deep, and $\frac{3}{4}$ths of an inch thick in the side, is made to contain the upper portion of the block and rests on the under one; this frame is covered on the top with very fine calico firmly stretched; when this frame is in its place it embraces, as I have said, the upper portion of the block, the cotton covering resting on the glass plate. Frame No. 2. embraces frame No, 1, is of the same materials, and covered in the same manner, the front lying on the top of the the cover of No, 1, and covered by frame No. 2. It is now ready for sponging, which may either be done by hand or else by means of the lever.

In my first experiments I used only one frame, laying the print on the naked glass: in this way the paper adhered very firmly to the glass, and as I imagined, parted with its impurities less willingly than when resting on a bed of cotton.

The mode in which the water is supplied to the sponging bag I consider worthy of notice: a tap is kept running moderately into the funnel on the top of the lever, by which it is carried to the centre of the pad and dispersed uniformly over the print, the lever being moved rather quickly and firmly as long as it is judged necessary.

My opinion is, that five minutes' working with this is equal to five hours', perhaps five days', steeping in the ordinary mode.

From the Liverpool Photographic Journal.

NEW METHOD OF OBTAINING POSITIVES.

BY M. A. MOITESSIER.

M. Moitessier employs the camera for copying a negative in the same way as if he were reproducing an engraving: whilst an ordinary engraving will give a negative, this, treated in the same manner, should yield a positive image; and in the same way that an engraving can be copied of any size by varying the distance between it and the lens, so also may positives of any size be obtained from one negative. For this purpose it is sufficient, after having obtained the focus and taken the customary precautions, to place in the instrument a collodion plate, and thus obtain a positive which can be developed as usual. The image thus obtained, as will easily be imagined, possesses all the qualities of the negative, being taken by the same means—all the sharpness, softness, and transparency in the shadows, which give such a charm to a good print, being present.

There only remains now to remove the collodion film from the glass on to a sheet of white paper. Enamelled card, such as is used for visiting cards, is the best for this purpose, being perfectly uniform, free from granular appearance on the surface, and possessing a lustre which gives a very agreeable tone to the picture. The operation of removing the film, seemingly so delicate is nevertheless very simple, a very little practice being sufficient to ensure successful results.

M. Moitessier arranges his camera and negative in the following manner:—an aperture the size of the negative is cut in a window shutter, having grooves down the sides to hold the negative (which will thus be inside the room). On the outside of the shutter are similar grooves to hold a piece of ground glass, for the purpose of removing the transparency of the negative, and thus prevent objects beyond it being copied. No light should enter the room but what passes through the picture, as on this depends, in a great measure, the brilliancy of the positive obtained. It is better to have a window exposed to the sun, as the operation is then considerably quickened; but this is by no means dispensable, as pictures can be copied easily in the shade or in dull light, when nothing could have been done by the ordinary process. In front of the negative is placed an ordinary camera and lens, exactly in the same way as in copying an engraving: either single or compound achromatic lenses may be used indiscriminately.

For positive not larger in size than a half plate, M. Moitessier uses a very simple apparatus, which enables him to take four copies at the same time instead of only one. By means of this apparatus, from twenty to five and twenty positives can easily be taken, and finally mounted, in an hour, which far surpasses most of the methods now in use. His apparatus consists of four small lenses of 1 inch diameter, and 12 inches focus each mounted on a small slide: at the front of the camera are four pairs of diagonal grooves to receive the four slides which holds the lenses.

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* We have long used collodlon, for dry processes, prepared from the following formula:—

Iodide of Cadmium	3 grains.
Bromide of Cadmium	4 „
Soluble Paper	5 „
Alcohol	3 drachms.
Ether	5 drachms „

On calculation, we find that if the bromide of cadmium be increased to $4\frac{1}{2}$ grains, the conditions recommended by Mr. Berry will be almost exactly fulfilled—Ed—L. & M. P. J.

It will be easily understood that with such a system there ought to be seen on the ground glass four images of the same object, each perfectly sharp, provided that the lenses are identical in their focal lengths. It is also evident that the system can only be used for reductions and not for enlarging, and that the image should never be larger than a quarter or a third of the size of the negative: under these conditions there is no sensible distortion. If it is desired to obtain very small pictures, for instance, to serve for illustrating visiting cards, sixteen copies can be taken at one time by means of this apparatus: thus, supposing an engraving be desired, a negative is first taken from it by means of the four object glasses, and thus four images are obtained on the same plate, and this negative treated in a similar manner yields in the apparatus sixteen positives at one operation; the method is however, only applicable to obtaining very small pictures.

The interior of the camera must be divided into four compartments by a verticle and horizontal partition, so that the action of each lens may be kept to the proper part of the plate. This is a very important arrangement, for otherwise the different images would overlap and produce confused pictures: the interior surfaces must be painted black. M. Moitessier employs collodion as the sensitive material on which the positives are taken, and the manner of using it differs but little from the negative process. The preparation of the glass is exactly the same in each case, but one important point must be attended to in the collodion—that which is employed ordinarily for the production of negatives gives excellent results, but it is somewhat too fluid to allow of the positives being removed from the glass; an increase, however, in the amount of gun-cotton present at once remedies it. The nature of the iodide employed is of litttle consequence, as the sensitiveness is not a condition of success; however, as iodide of zinc gives a very uniform collodion it is rather preferable.

The glass plate having been coated with collodion in the ordinary way, is rendered sensitive in a silver bath of 15 grains to the ounce, and then exposed in the camera. The duration of exposure is very important, but as it may vary between a few seconds and fifteen minutes, it cannot be indicated precisely. The intensity of the light, more or less transparency of the negatives, focal length of the lens, size of the diaphrams, sensitiveness of the collodion, &c., are all causes which materially influence the rapidity of action. In general, for a collodion negative of ordinary intensity, working with sunlight with a lens of 12 inches focus and ½ an inch aperture, to obtain positives of the same size, the exposure in the camera should be between one and two minutes: for magnifying it will take longer; for reductions shorter time; paper negatives, in general, require a much longer exposure, sometimes upwards of a quarter of an hour.

As may be seen, practice is the only guide; one experiment, moreover, giving more valuable indications than could possibly be described here. The quadruple object glass apparatus is very useful in determining accurately the proper time of exposure, as by giving each image a different time, this difficulty will be solved in one experiment. The image is develope by means of pyrogallic acid as usual for negatives, with the exception of being rather weaker. M. Moitessier prefers the following:—

Pyrogallic acid	1 grain.
Glacial acetic acid	10 „
Water	1¼ ozs.

This liquid should be spread uniformly, and at one motion, over the surface of the glass, as in developing a negative; the image should appear at once, and very quickly darken to its full intensity; if it is at all sluggish in appearing, it is a sure sign of the exposure being wrong, and the result will be hard and wanting in half tone. On the other hand there must not be the opposite fault, which is seen by the action being too energetic, as then the picture will be flat: on an average a minute should suffice for the development.

After developing, the picture must be carefully washed and fixed in the ordinary manner. The following solution of hyposulphite of soda may be employed:—

Hyposulphite of soda	65 grains.
Water	1 ounce.

But M. Moitessier prefers cyanide of potassium, which appears to give more agreeable tones. It should be very weak, as otherwise, owing to its energetic action, there will be danger of its attacking the picture. The following is a very safe strength:

Cyanide of potassium	4 grains.
Water	1 ounce.

This solution is to be poured on the plate and back again once or twice, if necessary. Its action will be finished when all the parts which have been unacted on by light have been dissolved away, and have left the picture perfectly transparent; it should then be washed plentifully, to remove the excess of cyanide. If it is desired to obtain glass stereoscopic transparencies, it will only be necessary now to dry the plate, as the picture, by transmitted light, is of a very agreeable color, which it is not necessary to alter. But the case is different if the picture is to be transferred to paper; some operations must follow the fixing, so as to alter the color, which would otherwise be very unpleasant.

After the picture has been fixed and carefully washed, a saturated solution of bichloride of mercury must be poured over it. The first effect of this solution is to slightly darken the image, but it soon becomes white, and a perfect negative, if viewed by reflected light. The action is complete when the image is of a uniform dead white, which takes about one or two minutes on effect; when this is the case, it is to be copiously washed, and the following weak solution of hyposulphite of soda poured over it—

Hyposulphite of soda	30 grains.
Water	1 ounce.

Under the influence of this solution the image immediately changes color, and assumes an agreeable velvet-black tone. Sepia tints are obtained by a longer exposure in the camera, and the employment of a weaker solution of pyrogallic acid for developing.

It is of importance in the uniform action of the hyposulphite, that the plate should be well freed from bichloride by washing, and that it be thoroughly drained. Without this precaution, the large amount of water on the surface prevents the regular spreading of the hyposulphite; it will be thus of different strengths in different parts of the plate, and give rise to stains which nothing will remove. After this there only remains to well wash the picture, and it will be ready for removing on to paper.

These operations may seem tedious and difficult, but M. Moitessier assures us that what appears complicated in description is very simply and rapidly executed in practice. Even to those who are not very *au fait* in photographic manipulation, there will not appear any serious difficulty, and a very few trials are sufficient to enable the operator, even when unexperienced, to obtain satisfactory results.

The remaining operation of removing the collodion film presents no difficulty, provided the collodion is tolerably thick. The selection of a good white surface, on to which the transfer is to be made, is of the greatest importance, and after many fruitless trials, M. Moitessier hit upon glazed enamel card, which is admirably adapted for this purpose; it is very smooth, the collodion adheres perfectly without the aid of any cement, and dries without any danger.

The transfer is effected thus:—the card must previously have been cut into sheets a little smaller than the glass on which the picture is, and then is to be immersed into a basin of water for a few seconds. The glass having then been placed on a levelling stand, is next to have as much water as it will hold poured over the surface. The sheet of wet card is next to be laid down on it, taking care to have no air bubbles imprisoned, and the glass must then be gently lifted up, holding the card by the two corners to prevent its slipping, and held vertically for a few minutes to allow the liquid to drain off; that being done, the collodion film must be detached from the glass, and folded over the card. If now the collodion film and card be gently removed by one of its edges, the film will be sure to detach itself, without the least difficulty, from the glass on which it had previously been supported; and after drying, either in the sun or by a gentle heat, will be finished. The entire process presents no difficulty, and always succeeds, provided the collodion be of the proper consistency.—(*Science pour tous.*)

From the Liverpool Photographic Journal.

MANCHESTER PHOTOGRAPHIC SOCIETY.

The usual meetings of the council and members were held at the rooms of the Philosophical Society, on Wednesday evening, the 8th of April. Mr. Neville was in the chair at the former, and the Rev. W. J. Read, M.A., F.R.A.S., presided at the latter.

After passing the minutes of the last meeting, letters were read from the Literary and Philosophical Society, from the Liverpool Photographic Society, and a circular containing the rules and regulations of the Photographic Exchange Club connected with the Society at Birmingham. The Secretary reported that he had transmitted to Mr Archer 34*l.* 16*s.* the amount subscribed by the members of this Society, and read that gentleman's acknowledgment, as follows:—

"105, Great Russel-st., Bloomsbury, W. C. 6th March, 1857.

"Sir,—In reply to your letter received this morning, I am at a loss to express my sense of the high compliment paid to me by the members of the Manchester Photographic Society, by electing me an honorary member of the same, and in having still further shewn their appreciation of the great value of the collodion process in photography, by the testimonial they have so promptly raised. This is highly gratifying to me, as few men, live to see the general application of their discoveries, and fewer still to have them so generally acknowledged.

"I must beg you to thank the member of your society for the honor they have thus done me, and to assure them that if health and leisure are permitted me, I do hope, with the humble means I possess, still further to advance the art of photography.

"I have the honor to be, Sir,

"Yours faithfully.

"Frederick Scott Archer."

A letter was also read from the Secretary of the Royal Society, in reply to an application for a copy of Padre Secchi's representation of the lunar crater Copernicus, stating that all the photographs are now distributed and are only photographs of a drawing, and that itis being engraved for the Royal Astronomical Society.

Mr. Sidebotham called the attention of members to the subject of producing naturally colored photographs, and made the following observations thereon:—

"A letter in the last number of the *Liverpool and Manchester Photographic Journal*, from Robert Hunt, calls attention to the subject of naturally colored photographs, and suggest that experiments should be tried by ardent photographers. As photographs in their natural colors would be so vastly superior to anything we can at present produce, it would be well if every photographer would lend his assistance to obtain such a desirable result. In the ordinary collodion positives on glass we occasionally meet with examples of partial natural coloring, such for instance, as a green-tinge on the foliage. I have had one where the green and red in a photograph of some scarlet geraniums were tolerably bright, and I have here on the table a landscape, with trees and a red brick house, taken in bright sunshine, and you will see the green foliage and the red house are tolerably well marked in color.

"These effects, poor as they are, are very pleasing, but unfortunately they appear accidental, and we cannot re-produce them at will.

"It appears to me that, as a basis to any experiments, we should study well the photographic coloring of nature, endeavor to ascertain how we can in any degree copy the colors.

"In our fields we see flowers of the most brilliant colors produced by the action of light on the colorless secreted fluids which are obtained from the earth and the air; we see the green leaves and the flowers, consisting of several colors, all on one stem, and in some cases we have all the colors combined in one plant.

"Yellow, which is so difficult for us to copy, prevails more than any other color in flowers.

"There are some curious facts, which appear more than mere coincidences, which I have noticed in connection with this subject, and which appear to point out to us that we are not so very far from the desideratum of colored photographs even in our present processes.

I am not prepared to enter further into this matter at present, but will just mention one instance. We all know that blue in our present processes acts the same as white; now if we turn to nature, we find that flowers of blue or purple color are extremely liable to change into white. The different species of campanula, the harebell, the violet, &c., have all their white varieties.

Again, in drying blue flowers for the herbarium it is quite im-"possible, in many cases, to preserve the color, the flowers become white in a little time, however carefully they may have been preserved. A series of careful observations might lead to some practicable result, and any one who had the time to devote to the subject would, I feel sure, be amply rewarded, even though he failed to discover the process of obtaining photographs in their natural colors."

Mr. Sidebotham exhibited a landscape taken by him in 1852, in which a green tint on the foliage and a reddish tinge on the building were clearly observable.

The Rev. Chairman said a curious instance of this had come under his own notice, in which the veins in the hands of the portrait were strongly marked with color.

It was stated that Professor Frankland, in consequence of other engagements had not been able to prepare the expected paper on photographic printing.

The Chairamn pointed out a neat mode of exhibiting photographic transparencies in the form of a shade for the moderator lamp.

Some conversation ensued, in which opinions were expressed in favor of employing fused nitrate of silver for the sensitizing bath in the collodio-albumen process.

Mr. Mann said that he had had very good results from the oxymel process of Mr. M. Lyte, and Mr. Sidebotham bore testimony to the beauty of some of Mr. Mann's pictures.

Mr. Cottam (hon. sec.) said he had been induced to bring a picture of his, though a bad one, on account of a singular circumstance. He had produced from Mr. Dancer a number of prepared plates (collodio-albumen), and exposed them; on development there appeared a picture which he had not expected: in addition to the view to which he exposed the plates, there appeared the traces of an experimental picture taken by Mr. Dancer, namely, a scene in his garden with a staff with figures on a card at the top. On investigation it turned out that the plate was one which Mr. Dancer had tried whilst investigating Mr. Sutton's views on the distance of the lenses in the stereoscope, in August or September last. The plate had lain aside after exposure without development, and was not even resensitized before it was accidentally given to Mr. Cottam, with others, and then exposed by him when both Mr. Dancer's picture of August, and Mr. Cottam's of March, came to light; the first picture having been latent since August.

Mr. Edwin Offer was appointed auditor of the Society's accounts for past two years.

The members present received their copies of the Society's Photographic Illustrations, the Secretary stating that the remainder would be issued in a few days.

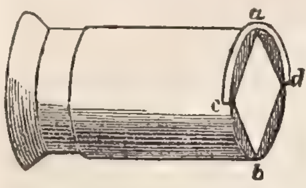
This meeting closes the Society's session, the next announced meeting being the annual one, 5th of August next.

The Council, however, hope to hold one or two meetings of members in the interim.

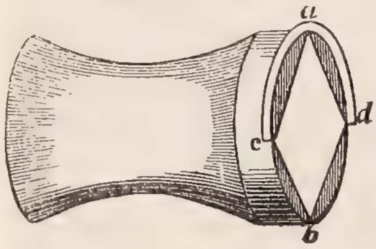
Never lose an opportunity of seeing anything beautiful.

From the London Art-Journal.

THE PICTORIAL TUBE.



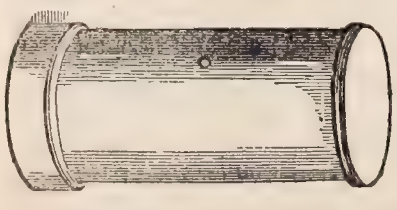
Every one who has seen a good dioramic exhibition must have remarked the closeness of its approach to reality; and some, like ourselves, may have been even deceived for a time into the belief that the natural picture was itself before them. Yet these dioramic pictures are generally much inferior to the works of highest Art. Does not this, therefore, prove the more, how necessary it is, when we are looking at paintings, that we should try to eliminate in every way we can the multiplicity of objects which usually surround them, distracting our attention, mingling with their proper lights, and disturbing their effects? The diorama effects these eliminations by cutting off, as absolutely as possible, the light of day, and substituting for it an artificial illumination of high power, which, by passing through the picture alone, carries as it were, a more perfect semblance of the reality to the retinæ of our eyes. In this way all canvas reflections, are entirely obviated, and the vision of circumjacent objects largely suppressed.

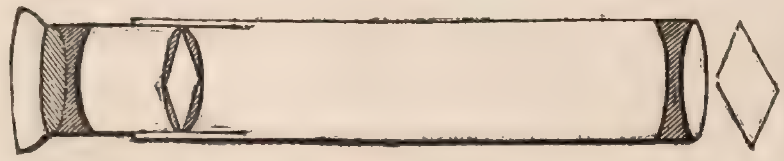


The tube, which is here engraven in two forms, has been designed to render to the higher Art-pictures the same service which this elimination so effectively yields to dioramic, without displacement of that only perfect compound light which the sun so bountifully sheds and the atmosphere so equally diffuses around us. As a mere invention, it claims little regard—its principles are so simple and its structure so easy; but it will have, none the less, some considerable claim to usefulness, if, as its author takes leave to affirm, it shall prove available to increase our enjoyment and our discrimination of the world of Art-painting.

The contrivance may be said to spring from, and claims kindred with, the almost universal custom of connoisseurs in looking at pictures through such tubes as the bent hand, rolled paper, and the like; and simply consists of a short tube of any material, blackened inside, and having at its wider end a band of india-rubber, which can be distended at any two fixed and diametrically opposite points *a* and *b*, and also by means of a semicircular ring of wire, at two varying points *c* and *d*, whose variation will accommodate the figure of the opening to that of a *square* or any *oblong* picture. By undoing the distension, it gives a *circular* opening, and this can be changed into the *elliptical* form by giving the band, or, which is better, another diaphragm inside it, a partial motion on one of its diameters as an axis.

The whole instrument need not be much longer than a watchmaker's eye-piece, and may be used singly or in pair. It becomes an optical instrument at once, if a diverging lens be inserted for the eyeglass, and a tube be affixed to the other end containing an object lens of longer focus than the tube itself. The focal image will then take the place of the picture itself; and though, as in the Galilean telescope, the image will be only virtual, yet the consequences will be unaltered, while the band or diaphragm will be smaller and the picture will be magnified. In every case the eye-piece should be in the form of a slider, so as to adapt the tube to the varying sizes of pictures and the different distances of the beholder.





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From the Liverpool Photographic Journal

THE CALOTYPE PROCESS.

To the Editor of the Liverpool Photographic Journal.

Sir,—I am sorry to see in your valuable Journal so little information on the subject of the calotype process. The various modes of preserving the sensitiveness of collodion appears at present to be engrossing all the attention of photographers, and the paper processes are, I fear, falling into disrepute. However, as I am sure some among your many readers will agree with me that the calotype is *the* process for the tourist, I venture to send you a few notes of my manner of proceeding, and the difficulties I have met with, in the hope that you will think them worthy of insertion in your next number; and that others may be induced to communicate their experience in this department of our fascinating art.

The principal advantage of collodion seems to be the greater sharpness of the results; but though calotypes will certainly not bear microscopic examination, I am sure quite sufficient detail can be obtained for any ordinary purpose. Indeed I think the risk of breakage in glass negatives is alone more than sufficient to counterbalance all their advantages.

I always use Turner's paper, considering it far superior to Hollingworth's, or any other I have met with. I iodize with the the double iodide of silver and potassium (made as directed by Mr. Sutton, though I consider the strength of no importance), applied with a large camel hair brush. With regard to washing, I think 24 hours, as Mr. Sutton directs, much too long a time, though certainly it is an error on the right side. It appears to be necessary carefully to remove the air bubbles which form on the suface of the paper, otherwise the iodide of potassium, not being completely washed out at these points, decomposes the sensitizing solution when applied, and produces white spots in the negative. Now this cannot easily be done if a number of papers are in the same vessel of water, and it is very inconvenient and troublesome to have every one in a separate dish, so I have adopted the following plan, which I find to answer perfectly;—I take a board large enough for six of my papers (9×7) to lie upon, about 30×15 in., and nail a strip of wood about ¾-in. thick round the edges, so as to form a sort of shallow trough. The papers being pinned to this by two corners, I place it slightly inclined under a tap, and allow a stream of water to run over them for a couple of hours or so, removing the bubbles from time to time with a camel hair brush. However, as this method is only applicable where there is an unlimited supply of water at command, an easy and efficacious plan of washing is still a desideratum.

I find, however, that though I take the greatest care in the washing, I cannot entirely prevent the occurrence of white spots in the negative, so I conclude that they must be in part attributable to something in the paper. I shall be glad to hear if calotypists generally have met with this difficulty, and how they surmounted it. I think Hollingworth's paper is less subject to this fault than Turner's but in all other respects it seems decidedly inferior. Metallic particles in the paper give *black* in the negative by reducing the silver in the sensitizing solution. I observe in the London Journal for Feb., a correspondent gives as a remedy for these the addition of iodine and cyanide of potassium to the iodizing solution; and no doubt this will prove efficacious, as the free iodine would convert the metal into an iodide, which if not soluble in water, would dissolve in the cyanide and be washed away.

I may mention here that unevenness in the coating of iodide of silver does not appear to do any harm.

The sensitizing solution I use is two drops aceto-nitrate (30 grains to the ounce), and two drops saturated solution gallic acid to each drachm of water. I apply it with a Buckle's brush, allow the paper to remain a minute or so, and blot off. All accounts of the calotype I have seen concur in stating that the paper when excited, will keep *at least* twenty-four hours; and Mr. Griffiths (the correspondent of the London Journal just alluded to), though his sensitizing solution contains five drops aceto-nitrate to the drachm, states that he has used his papers in cold weather seven days after exciting, and two days in the *very hottest* weather! Now, I cannot get my papers to keep over twelve hours, without blackening all over when developed; though, if developed within six or eight hours after sensitizing, the results are perfectly satisfactory. How is this? This is another point on which I should like to hear the experience of other photographers. If the papers could be preserved with certainty for twenty-four hours, it would, in most cases, be all that is required; for, on a tour, the papers could be excited either the night before or on the morning of the day when the views are to be taken, and developed in the evening.

To develope, I pin the paper to a board, as in sensitizing, and with a Buckle's brush apply the mixture of aceto-nitrate (30 grs.) and gallic acid solution—equal parts, if the picture is invisible, or nearly so, and proportionably more of the gallic if visible. If the picture comes out too rapidly I brush again with gallic acid alone, or if too slowly with some stronger gallo-nitrate. After a few minutes I take it off the board and lay it, face down, on a small quantity of gallic acid solution in a paper tray, and allow the developement to proceed until intense enough. The paper trays are exceedingly convenient; but care must be taken to *damp* the paper *before* making them, otherwise, when the solution is poured in, it all goes into creases; which, if they come in contact with the picture, cause streaks of imperfect development. It is not necessary to fix the negatives when away from home, as, if they are washed for a few minutes, first in plain water and then in water with a little salt, they may be kept a long time without injury.

Yours &c.
R. W. Foster.

OUR ILLUSTRATIONS.

We present our readers this month, with two illustrations that will go far to show the relative workings of distinct negatives under the same circumstances and with the same manipulations. The slightest variation in the toning bath would have given much better results, as will be shown by the photographs in the June number. The first in the present number is a

Portrait of a Negress.

The negatives are by Mr. F. A. Wenderoth, of Charleston, S. C., and are very fine—the best we have had since we commenced printing our illustrations. The defects of the positive prints are occasioned by the excess of acetate of lead used. These positives, however, are much better, in general, than any we have given this year.

The second illustration is

The Young Bachelor's Sunday Morning;

intending to illustrate one of the miseries to which that most miserable of mortals—a bachelor—is heir. It tells its own story. The negatives are by C. Farrand, of New York, from a Daguerreotype by Mr. Harrison, of Oshkosh, Wis. The peculiarity of the difference in these two illustrations, consists in the tone and color. These will be readily perceived by all. Both pictures were printed on the same kind of paper (Canson's), salted in the same solution (180 grains chloride ammonia to one gallon of water,) nitrated in the the same manner (by floating), in a solution made in same way as described in our February number. They were printed as near as possible to the same degree of strength, the color when taken from the printing frame being of a deep bluish purple, and toned for the same length of time (20 minutes), in a bath composed as follows:

Water	2 gallons.
Hypo. soda	2 pounds.
Burgess' common chloride of gold	1 doz. bottles.
Acetate of lead	To saturation.

In this bath there is too much acetate of lead and not sufficient chloride in proportion to the acetate. We should state that all our prints for this year, are washed for thirty-six hours in running water. The number of prints toned by a bath of the above quantities, is a few over two thousand.

GROTTA FERRATA.

In the whole neighborhood of Rome there is no spot more interesting to the artist or the lover of saintly lore than the monastery of Grotta Ferrata, situated on the confines of the great chesnut forest where I have whiled away the delicious, dreamy summer months. Looking down from our mountain eyrie, there stands the huge pile, majestically crowning the summit of the low fertile hills which abut on the dreary, burnt-up, Campagna, now deepening into the brown and ruddy shades of autumn. The path from my home descends through romantic woods of magnificent trees, old enough, to all appearance, to have been cotemporaries of Amitor and Numitor, the early kings of ancient Alba;—grand old chestnuts flinging around delicious shade and freshness, even under the sun's most fervid rays. After a time this woodland track of sylvan beauty opens on the Roman road, skirting the pleasant vineyards, now mantling with luxuriant leaves, under which the already purpling bunches of the rich food peep out. The songs of the *Contadini*, in a kind of rustic chorus sung in parts, come floating through the air, as they labor in the olive groves which border the sunny side of the valleys. The peach, the apple-trees, and the figs, bow down with the weight of blushing, bursting fruit, and tall flowers spring up in the hedge-rows and between the vines, giving a pleasant greeting as one passes. No wonder the ancient Romans loved the Arcadian beauty of the Alban hills, "where breathes the freshness of the main." Riding along on my trusty mountain pony, I have often found myself in an uncontrollable fit of enthusiasm, exclaiming—

> "'Tis a goodly sight to see
> What Heaven hath done for this delicious land,
> What fruits of fragrance blush on every tree,
> What goodly prospects o'er the hills expand."

On one side are the rocky hills of old Tusculum, heavy with dark woods; before, in the far distance, Rome—the Eternal—reclining like an eastern beauty on her majestic hills, backed by the blue mountains of the Romagna; to the left, bosomed in forests, repose the placid waters of the Alban Lake. In the centre of this fertile district, so abounding in classic associations, Grotta Ferrata is situated.

Quite away from the little groups of sunny-looking houses forming the village, away to the left, under the umbrageous shadow of wide-spreading sycamores and venerable plane-trees, uprise the turrets of the vast castle-monastery, surrounded by a moat, and flanked by solid towers, as imposing a mediæval structure—with its machicolated battlements, and castellations, and mullioned walls—as ever frowned down over a verdant land. To be sure it looks no more like a monastery than "I to Hercules;" on the contrary, its aspect breathes the very spirit of the fierce feudal ages. One expects to see the mailed retainers and helmed warders peeping over the turretted breast-works, to hear the men-at-arms sounding the shrill bugle to warn the garrison that a foe approaches, and to see the flaunting pennon of the Rovere, the feudal lords of the fortress, waving from the battlements, together with all "signs, shows, and modes," befitting the "pomp and circumstance" of war. But those grand machicolated walls are desolate; the solidly-arched gateway stands widely open; instead of armed knights and poursuivants, a pale-black-habited monk looks timidly out of an upper window; the lonely grass-grown court, flanked by castellated towers, flinging ominous shadows across the verdant lawns, is silent as the grave, save for the murmuring of the graceful fountain in the centre, dripping down silvery streamlets from a sculptured cup into a large basin beneath: court after court opens out within the walls, some bordered by pillared colonnades; the others, dark and dreary, as leading down to deep dungeons

> "Where the chain'd captive sighs for death,"

but all castellated, and warlike in aspect; all impressed with a martial defiant look, suggesting far other days, and making the poor Basilian monks that steal about look strangely out of place.

The church, standing on one side of a spacious columned cortile, looks at first sight like some great hall or vestibule, reserved for the barons to assemble when they keep their state; but one is reminded of its sacred use by the words "Domus Dominus" inserted over the door, and a certain fragrant ecclesiastical perfume of incense and flowers, heavy with the prayers of faithful worshippers, that comes floating through the portal. The interior, although modern, is solemn and impressive, evidently "a crown of rejoicing" to the good monks, who continually hover about and keep everything in a state of the most apostolic order. A cardinal, whose carriage waited at the door, was kneeling before the altar, surrounded by his attendants, his large scarlet hat lying on the pavement beside him.

Through an open door I unconsciously passed into the mortuary chapel, of modern gothic architecture. I started back on seeing a bier strewn with flowers, the offerings of some poor *Cantadini*, who gave their *all* in those blooming flowers, to deck what lay beneath. How sweetly suggestive is this national custom of strewing the dead with flowers, frailest and fairest of the daughters of earth! The bier was spread with the usual covering of black edged with gold, the skull and crossbones glaring fearfully out on the dark cloth. I was so taken aback, that for an instant I had not courage to advance; the sight of death is ever to me peculiarly awful. When I looked again, I saw stretched on the bier a lovely infant, pale and fair as whitest roses under the trembling moonbeams. It had died in peace, for not a look of suffering lingered on the small features, the delicate eyes were closed, the curling, golden hair rested on its faded cheeks, flowers were entwined round the small head, and strewed over the fragile form, all shrouded in purest white. The little hands were crossed on the chest, and tied together with a blue knot of ribbon, and among the fingers a red pomegranate flower, so red and beaming, was placed, closely clasped in the pallid fingers.

Ah! there lay the hope, the joy, the delight of some fond mother's bosom. The star had fallen from some mother's heaven when that little form was laid on the sombre bier, when those bonny eyes were closed, when that sweet infant voice was hushed, and that loved little one borne away out by the darkened door. Oh! what a world of misery hung around that bier! Life, love, hope,—all gathered into the small, narrow grave; and the flowers,—the bright, mocking, jocund flowers,—what did they do there, smiling in the dead child's hand? breathing of spring and sunshine, and all pleasant, joyous things? the burning red pomegranate blossom in the lifeless hand, beside the awful skull and the crossbones, and the expectant worms watching beside? Oh! it was cruel!

I had heard of the famous chapel dedicated to San Nilo, but being lamentably ignorant of his history, I begged one of the monks, a most pleasing and gentlemanly man, to relate it. I have often observed there is nothing more gratifying to monks than asking them questions and minute details about their patron saints; it touches their *local* vanity like magic, and delights them, good, simple souls, as much as the praise of her beauty does a lovely woman. On the present occasion it was even so; with a benignant, gratified smile, the monk began.

"St. Nilo," said he, in Italian, "was a Greek of Calabria, born near Tarentum, one of those cities of southern Italy where so much that is classical and Grecian still lingers. Our saint, availing himself of the liberty granted by the Greek church, united himself to an excellent woman, *una santissima donna,*—they together, by their lives, setting an example of the holy and faithful discharge of all domestic virtues. But, it seems to me, Signori, *noi altri* are better off single, after all,—for, after living a few years in great happiness and peace, his beloved wife was taken to Paradise, and sad and melancholy San Nilo mourned her loss. Despair, solitude, and grief led him to take refuge in the unruffled harbor of a monastery, he became a monk of the Grecian order of San Basilo, the holy founder of monasticism in the East. He took the vows at the convent of Rossana, where he lived long in the odor of sanctity, and was at last so respected for his great *giudizio*, learning, and goodness, as to be placed at the head of the community. There he remained until the incursions of the Saracens, driving him from eastern to western Italy, he fled to the famous Benedictine monastery of Monte Cassino, near Capua. But, alas! here fresh troubles awaited the *Santo uomo*, for the princess who ruled that district, Aloare by name, who was a wicked woman, sent for the saint, whose sanctity had made his name famous far and wide, and being troubled in her conscience by reason of a crime she had committed, confessed her sins to him, demanding absolution. But the blessed saint replied that, unless she was ready to make restitution to the family she had injured, and to deliver over her own son to them in place of the one she had caused to be murdered, for them to deal with as they saw fit, he would not absolve her, but rather would publicly denounce her as an unshriven and unrepentant sinner. The guilty mother could not resolve on the sacrifice of her son, nor could she prevail against the stern rectitude of the priest, although she offered him a large sum of money in order to induce him to wipe away the crime which weighed so heavily on her conscience, by the blessed words of pardon and absolution. San Nilo indignantly flung the money she offered him on the ground, and departed," continued the monk, "*ringra-giando Iddo che non era capace di un tal peccato.*

"Being no longer safe in those countries where the wicked Aloare ruled, he turned towards Rome, and seeking the solitude of the Aventine mount, secluded himself within the Church of San Alessio,—that humble servant of God, *e devotissimo Santo*, whose life of self-sacrifice and fortitude (living voluntarily as a beggar in rags, hid within his father's palace,) make him of all other saints gentle and benignant towards those whose sorrows lead them to love solitude and contemplation.

"Rome was at this time distracted with revolutions and warfare. Otho III., Emperor of the West, suddenly leading an army into Italy, deposed the pope, John XVI., and placed a relation of his own in the papal chair. Murders and horrible excesses were the consequences of this violence, which San Nilo heard of in his retreat on the Aventine, with infinite pain, for the deposed pope, a Greek by birth, was his valued friend. The new pope and his patron, Otho, wished, however, to conciliate the favor of our saint, for he was held," continued the monk, "at Rome as elsewhere, *come un uomo veramente Santo, ee inspirato da Dio.* But he would not listen to overtures from the wicked Emperor, any more than to the prayers and threats of the princess Aloare, so being no longer safe in Rome, he shook off the dust from his feet, and went to Gaeta. Otho afterwards, touched by remorse for the evil he had done, undertook a pilgrimage to the miraculous shrine of the glorious Archangel Michael, at Monte Galgano, desiring in his way to obtain a meeting with the Saint.

"At the sight of the venerable monk the Emperor fell on his knees, and entreated his prayers and intercessions, promising to erect a splendid church where stood the lowly oratory in which he and his companions then dwelt. But St. Nilo, constant to his principles, firmly refused all these offers, together with the Emperor's flattering blandishments. 'These monks, my brethren,' replied he, 'who dwell around, are truly citizens of heaven, who here below live in tents as strangers and pilgrims upon earth.' Otho then entered their oratory, and, after praying there, was led by St. Nilo to his own cell. Here he pressed him again to accept a plot of ground anywhere within his dominions, promising richly to endow it. But our saint thanking *Sua Maesto*, answered that, 'If his brethren were truly monks, the Divine Master would not forsake them.' Then the Emperor, who had even knelt to the saint, rose up, and begged him at least to ask any boon or favor for himself he might desire. Our blessed saint, touched by his importunity, laying his hand on the Emperor's breast, replied:—'All I ask of you is, that you will save your own guilty soul: though a mighty Emperor, you must die and give an account of your actions to God like other men.' After this interview Otho returned to Rome, where, the people rising against him, he was ignominiously driven out, and died soon after, while our saint removed from Gaeta and founded this monastery near Frascati, where he lived in great peace with his friend San Bartolomeo, saying every day mass in the Greek tongue, a custom we religiously continue until this day." "Come now, Signora Mia," continued the monk, "and look at the frescoes with which Dominichino decorated the chapel dedicated to our saint, and his disciple the holy Bartolomeo."

On the walls of this chapel Dominichino has transmitted to posterity the record's of St. Nilus's life, in a series of the noblest frescoes this great master of the Eclectic school ever executed. None of his works at Rome are more perfectly preserved or more brilliantly colored. The good Basilian monks, with reason, esteem them the glory of their church,—a shine before which all creeds must bow in a truly catholic worship of immortal Art.

"Dominichino," our loquacious and intelligent monk went on to inform us, "was in his twenty-ninth year when he painted the chapel, and was driven out from Rome by reason of a crime he had committed—'*un delitto per una certa donna*' (woman being always at the bottom of every mischief). This 'ladye of his love' accompanied him, it seems, when he fled from justice and from Rome, dwelling at Frascati close by, while he himself invoked the protection of his patrons, the Farnese, who granted him an asylum within the citadel of the monastery of Grotta Ferrata, included in the diocese of Cardinal Odoardo Farnese."

During his exile among the Basilian monks, which continued some time, Dominichino was employed by the Cardinal to paint this chapel.

These frescoes are evidently the work of a conscientious young painter, from the faithful portraiture and identity of nature visible in them, before an acquaintance with other schools and masters had rendered his style conventional. Yet, great as were the powers of Dominichino, these works alone would suffice to show how infinitely in point of fancy and imagination he was inferior to Raphael, although undoubtedly his superior both in coloring, and in a certain true and life-like expression he threw into his finest works. In elevation and classic elegance Dominichino was, however, entirely distanced by that "unrivalled sovereign of the realms of grace," whose heavenly imagination seemed absolutely to inspire humanity, until it became in aspect like unto the Godhead in whose image it was created.

Dominichino dealt rather with the *realities of life*, which he faithfully depicted, and ever labored on an on, slowly and surely, with an industrious perseverance, that gained from his cotemporaries the nick-name of the "Ox."

Two large frescoes occupy the principal walls of the chapel; that to the left representing the "Meeting of San Nilo with the Emperor Otho," who, half kneeling, casts himself despairingly into his arms. The mantled, jewelled king, with his magnificent train of armed and plumed attendants and horses, offers a fine contrast to the sombre robes of the venerable saint, who contemplates the royal sinner with a look "more in sorrow than in anger." The composition is full of figures, but fails in the *geometrical order* and dramatic grouping so admirable in Raphael and the higher masters. The principal subject is thrown too much into a corner. At first sight, one is puzzled to distinguish St. Nilo and the Emperor among a mixed crowd of figures. The coloring rich, but not glaring, is as fresh and bright as if painted yesterday. Trumpeters, attendants, and pages, are gathered in the central foreground in various attitudes, full of simple yet energetic action. A great white horse with distended nostrils, swelling veins, and pricked-up ears, prances out of the picture. It seems to listen, with its vivid eyes, to the clang of the trumpet behind: a moment more and it will be beside you. Yet, marvellous as is the action and fire of this horse, it is vulgar and coarse in form,—no better indeed than a Flemish steed. Admirably expressed is the terror of the page who holds it, reminding one, in general treatment, of the type of the mediæval page in which Pinturicchio and his school delighted.

Dominichino has represented himself as a youth holding the Emperor's horse, while near him stand two attendants, portraits of his friends Guido and Guercino, who, if they resembled those portraits, must have been unaccountably ugly. Guido, a brutal, vulgar-looking man, with a strikingly unintellectual expression, more resembles a Dutch boor than anything else. Guercino, seen in profile, is hawk-eyed and Jewish, with a tremendously prominent nose; and Dominichino himself, a keen-featured Zingaro, looking quite capable of committing every possible crime, "*per una certa donna.* Such a trio of ill-favored geniuses never were assembled before, I verily believe! The Emperor alone has a noble manly countenance.

A female figure in the centre, habited as a courtier, in a blue cap and white feather, full and voluptuous in form, with golden hair flying unbraided in the breeze, at once catches the eye. There is a wild bacchanalian look about the lovely face, and "tresses unconfined,"—the expressive, though somewhat dreamy eye, gazing full on the spectator—thoroughly Italian in character, spite of the Saxon fairness of the complexion. "*Quella persona*," said the monk, looking rather confused, "is the *bella* for whose sake Dominichino committed the crime for which he was banished Rome, and who, it is said, cost him his life afterwards, *poverino! Una ritribuzione mandata da Dio Davvero*." "It is said," continued he, "that afterwards, when the picture was uncovered, and the portrait was recognized by the parents and friends of *damizella*, they were in such a rage at the public affront put on them that they threatened his life, and that he was again obliged to fly away somewhere else. So it seems, Signor, Dominichino was no sooner out of one *impiccio* than he got into another—all for his sins, and too great love for *le belle donne*."

A distant view of the Castle of Gaeta, where the interview between the Emperor and San Nilo took place, finishes this most varied and interesting composition,—which, in spite of many obvious errors of composition and taste, is a masterly specimen of the occasional perfection attained by the otherwise objectionable eclectic school.

But far more excellent is a smaller fresco, representing San Nilo on his knees, healing, by his prayers, a demoniac boy with the consecrated oil taken by San Bartolomeo (who stands in the centre of the group) from the lamp burning before the shrine of the Madonna; the whole work is a prodigy of expression. Indeed it is not in the power of words to describe the vitality of the stiffening attitude of that livid child, thrown back with outstretched arms in a paroxysm of the fit under which he suffers; the pallid, death-like tint of the flesh—the upturned eyes starting from his head—the straightened hair—the strained and stiffening limbs—as, resting on his toes, he presses with agonized energy against the figure who supports him. The forms of the boy, though not so large and grand in style, are, in my opinion, infinitely to be preferred to the strained and unnatural demoniac Raphael has introduced in the foreground of the "Transfiguration." If Dominichino imitated the idea (as would seem to be the case) from Raphael, he has surpassed the original, both in severity of anatomical truth, and correctness of expression and drawing. Nothing can be finer or more appropriate than the solemn, grey coloring, as suitable to the gravity and mystery of the subject. A dull yellow and black are the prevailing shades in the draperies; the heads are low in tone, or rather are in half tint, giving a simple breadth without undue effect. The drawing of the hands and feet of the brother holding the oil is marvellously true and correct; indeed, in *material truth*, the whole fresco is inimitable. Among the other figures is the anxious, kneeling mother, one arm wonderingly upraised, while in the other rests a lovely infant. The two boys standing before her, drawing backwards in fear and trembling at the miracle, are finely expressed and contrasted with the calm figures of the two monks,—especially San Nilo, who,—quietly holding the lamp, behind which appears a circular image of the Madonna and Child,—stretches forth his hand, and touches with the sacred oil the tongue of the demoniac.

Two other frescoes are much inferior both in color and general interest. In one, to the right of the altar, the Madonna appears in a "glory" to the two saints, kneeling, and presents them with a golden apple as a symbol that on that spot she commands them to erect a church in her honor. The apple is said to be preserved in the foundations of the belfry. Another fresco, of equal size with the "Meeting of St. Nilo and the Emperor," represents the founding of the Monastry of Grotta Ferra,"—a somewhat bold composition in point of grouping, with fine architecural details in the background, the whole much faded withal, and injured by the damp. San Bartolomeo, who undertakes to erect the monastry, in obedience to the virgin's directions, after the Death of St. Nilo, the first abbot and patron saint, stands in the centre, examining the plan of the new building,—presented by the master-builder—through his spectacles. Masons and workmen form various rather uninteresting episodes in different portions of the composition; some are digging up an ancient sarcophagus, discovered in laying the foundation, while others are in the act of raising a column, which, according to tradition, would have fallen on the heads of the workmen, the cords having given way, had not one of the monks, rich in faith, sustained it with his single strength. As a whole, this fresco is poor; evidently a minor work; the composition scattered; the details are dry and meagre, even for Dominichino: the subject, indeed, is exceedingly unmalleable, specially for so natural and artistic an artist.

The only graceful "bits" are a life-like group of women and children, and a peep of back-ground, looking as if it had been copied *verbatim* from the beautiful ruins of Adrian's villa at Trivoli.

With the exception of the subject-foreground, the composition reminded me in general characteristic treatment of another famous fresco by Dominchino, "The Flagellation of St. Andrew," in the Church of San Gregoria, on the Cælian hill at Rome.

On either side of the hill appears the "Annunciation;" the Virgin, shaped in her convential robes of red and blue, kneels, while on the opposite spandril, the archangel,

> "A smooth-faced, glorious thing."

golden hued, and glitering, yet breathing the brilliant hues of paradise, pronounces the words which make her "Blessed among women." On the altar is a dark and uninteresting picture of the "Virgin," by Annibal Carracci, and on either hand, two beautiful fresco figures by Dominichino, "St. Edward of England," and "San Eustachio." Why Edward the confessor, our solitary royal worthy, is selected from the great army of saints and martyrs to decorate a votive chapel near Rome, I could not conceive; nor did the monks enlighten me. San Eustachio appears as a gentle, holy-looking youth, who turns his head, to contemplate the crucifixion of our Lord, miracuously revealed to him while hunting in a vision, seen between the horns of a stag, which is introduced looking over his shoulder. There is an earnest pensive character about the head very remarkable; a look prevenient, as it were, with a prophetic conciousness of his own shocking martyrdom. The cupola and the architraves are ornamented with some exquisite vignettes, finished with the care and precision of miniatures,—San Cecilia, San Monica, San Agnese, &c.; while below, on the spandrils of the arch, float four charming angels, of quite celestial beauty, bearing holy water, incense, the asperge, and the cross. No "Loves" of Albano, in his happiest inspirations, ever exceeded them in refined and classic elegance. Dominichino's isolated heads, and figures of angles or cherubims, are always beautiful. He is invariably more successful in grouping angels, whose flowing lines and airy draperies form, so to say, a boquet of connected lines in a compact order of form, than in arranging numerous figures collected to portray any particular event or action. Other scenes from the Life of St. Nilo decorate this most interesting chapel, where such unspeakable grace and propriety of arrangement are observable, both in the minutest as well as the principal details. Grand whole-length figures of celebrated saints of the Greek Church, painted by the same master-hand, are ranged around the chapel under the cornice,—solemn and venerable forms,—the very *Genii loci*, that seemed to loom down with reproachful glances on us sinners beneath.

The extreme beauty and finish of the compositions, the propriety of the subjects, and the general historic interest of the chapel have led me into greater length, than I intended. Perhaps I valued these brilliant frescoes the more intensely, seeing them, as I did, isolated from all other works of Art, amid the verdant recesses of the Alban valleys.

I thanked the courteous Basilian monk for the explanations he had afforded, and returned into the church, where were assembled a whole bevy of rebellious little urchins, gathered from the neighboring *paese*, busy repeating the "*dottrina*," a kind of catechism or litany, to another monk who stood near the altar, habited in the black tunic and cowl of his order, the tunic fastened by a girdle of knotted cord; he recited the first sentences, to which the children loudly responded, here and there a little voice stammering on after the others had ended, for want of promptitude; the child was duly rebuked. Once, when the little chorus sounded intolerably loud and shrill, the benevolent looking monk significantly pointed to the mortuary chapel beyond, where lay the flower-strewn dead, a hint not lost on the children, whose voices melted down to an almost reverential whisper as they glanced to where the little corpse lay.

I remounted my pony and retraced my way through the forest, where the shades of evening had already gathered.

FLORENTIA.

From the Liverpool Photographic Journal.

THE POSITIVE COLLODION PROCESS.*

BY MR. L. MCLACHLAN.

In laying before you the experience I have acquired in the practice of photography, I am sensible that much indulgence will be required on your part towards me, as it is a subject that has been so often treated by much abler men than myself.

At one time I believed it impossible to obtain a good picture if the wind was in what I considered the wrong direction; at another time, I believed that my collodion could not possibly be worked by any other man with success, neither could I obtain any that I could work with, and at last I gave up all idea of ever finding collodion, silver bath, developing solution, &c. that would take pictures by themselves, without using proper discretion in working them: I therefore began to reason with myself as to the cause of all my failures and the mind did its work as it will ever do, if applied with proper asiduity.

To begin operations, I procure the patent plate glass, which in my opinion is the best; obtain a *porcelain dish* sufficiently large to hold the plate that is to be cleaned, also another of convenient size to contain the requisite number of plates. Into the first put two ounces of water, one drachm of nitric acid, and two drachms of liquid ammonia,† and procure a piece of flannel, with which well rub the glasses in the first dish until all greasiness is gone; then place them in the second dish. After having cleaned as many, as you require, take one by one out and hold it under a stream of running water, to clear away every trace of the acid mixture—(I myself employ a filter for that purpose)—then well rub with clean cotton cloths. I find cotton cloths that have been much in use and well washed in soda, to answer better than any other material. After the glasses are well dried, place them in boxes ready for use. The cloths must be *scrupuously clean*, otherwise nothing but failures will ensue, however well prepared your chemical may be. I will undertake to say, that glasses cleaned in the manner described will be *chemically clean*, and do not know of any other method ensuring the same success, if even we take three times the trouble with them that is required by this process. Tripoli is not near so good; ammonia by itself will not do; no, nor even when nitric acid is used after, have we the same clean glass. I have never had any failures occur through dirty glasses. The cloths for cleaning glasses should be kept in a box by themselves. To give the glass the last polish, lay it on a table with a perfectly clean cloth underneath, then breathe well all over the glass, and with an old silk handkerchief rub until every mark entirely disappears; dust off any nap that comes from the handkerchief with a fine broad camel-hair pencil; it is then ready for coating with collodion.

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* Read before the members of the Manchester Photographic Society at their monthly meeting, Feb. 6th, 1857.

† It is only after having received a written assurance from the author that the above is really what he means, and feeling that we are not justified in altering the author's meaning is papers read before any society, that we have allowed this chemical error to stand. Both acids and alkalies exert very powerful, but totally opposite actions on the various substances likely to be present, as *dirt*, on the surface of a glass plate. Nitric acid and ammonia are each energetic members, the former of the class *acid*, and the latter *alkali;* and are recommended by several most experienced operators to be used *consecutively* (either with or without a purely mechanical agent, e.g. tripoli) for the more perfect removal of extraneous matter. The author, by mixing the two together, *neutralizes* their detergent properties, and consequently cleans the plates in a solution of the perfectly inactive result—nitrate of ammonia.—ED. L. & M.P.J.

Take the plate between the fore-finger and thumb of the left hand, and with the right pour on the collodion in sufficient quantity to cover half of the plate, and, without allowing it to rest, tilt it gently to the left hand corner, from the fore-finger and thumb to the right, and back again to the corner it is held by, finally pouring off at the right hand corner that is nearest to you, but whilst pouring off the plate must be worked from right to left, so as to cause the lines to collapse perfectly. After having allowed a few seconds for the ether to evaporate, place it on the dipper, and gently lower it into the silver bath. I never take out the plate until it is perfectly excited, which is easily known by the complete absence of all streaks. I would not advise the plate to be kept in the bath for any longer time than is absolutely necessary, as I believe it injures to some extent the development of the picture, more particularly with some collodion than others.

I prefer collodion that has an oily appearance when poured on the plate, and does not set sooner than in about *ten* or *twelve* seconds in winter, *two* or *three* in summer. If when drying it has a veiled appearance, the results will never be so good, the pictures seeming flat and misty looking. Collodion for positives I prefer containing a good quantity of free iodine; and should it not possess any, it may be added by taking resublimed iodine and dissolving it in spirits of wine, then adding drop by drop until the collodion assumes a deep orange color; by so doing I obtain much better half tones in my pictures. If persons prefer preparing their own collodion, the following formula I have found to give as good results as any I have tried:—

Purified Ether sp. gr. ·720	5 drms.
Alcohol sp. gr. .832	2 drms.
Soluble Cotton	5 grains.

To which is added 1 drachm of the following iodizing solution:—

Alcohol sp. gr. ·832	8 drms.
Iodide of Cadmium	16 grains.
Bromide of Potassium	4 grains.

Shake well together and allow to stand for a few days. I seldom find collodion to work well when newly prepared.

The bath I prepare as follows:—To 1 oz. of distilled water add 35 grains of nitrate of silver, and after deciding upon the number of ounces to be used, coat as large a plate as the bath will allow with collodion, and let it remain in the bath until the silver has deprived it of all the iodide it contained; repeat the operation until the bath is saturated, which may be easily ascertained by the last plate remaining in the bath unaffected. I prefer this mode of saturating the bath when positive pictures are wanted, in preference to saturating it at once with iodide of potassium. I believe better whites are obtained by this method. After having taken out the last plate filter for use. It should have a *decided acid reaction* to test paper. Nitric acid, although it retards the action of the light to a much greater extent than glacial acetic acid, also gives better whites. The bath must be kept carefully excluded from the light, or decomposition will ensue, the pictures appearing foggy when developed. In filtering silver baths, very great care should be taken in the selection of the filtering paper, some samples containing matter soluble in nitric acid; the safest plan is to place the filtering paper in the funnel, and wash it out with distilled water. I object to the filtering of silver baths, and therefore never resort to it, unless there are particles in suspension that will not settle to the bottom. I always make double the quantity required, and, allowing it to settle, pour off the clear portion for use. I keep by me a solution of 40 grains of nitrate of silver to the ounce of distilled water, which I occasionally add to the bath that the strength may be kept up, for after having worked the bath for some time it becomes considerably weaker, especially in winter, as the loss of water by evaporation is not near so great as in summer time. To keep the silver bath in good working order requires some little attention paying to it at intervals; for although we may begin with our materials in first-rate working order they will not keep long as they were originally. Every chemical we use is continually undergoing some change, and although it is very slight, it makes a wonderful difference in the quality of the picture. In fact it is only by very careful attention to trifling changes that are constantly taking place, that we can keep our materials in good working order. It is no use blaming the collodion, bath, &c. when things go wrong, nor coming to the conclusion that pictures cannot be taken because the weather is not so good as it might be. Truly we should have to modify the method of manipulating at times, to meet the atmospheric changes, density of light, damp, &c. I have here two pictures that were taken in the worst possible weather, about a month ago, the one negative and the other positive, and I think they may be considered as fair specimens of photography; yet the same chemicals in other hands produced nothing but failures; the same collodion being used for both pictures, the only difference made in the material was to slightly increase the strength of the developer, without adding any nitric acid in proportion. I also added a few drops of the silver bath to the developer, and quickly threw it over the plate: before I used the means described, the pictures came out thin and silvery, also developing very unevenly.

In developing positive pictures in particular, the hands should never be allowed to touch any part of the plate but the corner it is lifted out of the dark slide by to develope; some hands being so warm, that if allowed to come in contact with the back of the plate, they will cause an uneven reduction. I pour the developer on quickly, but not with such great force as to cause the silver to be washed away on the part it is poured on at. I use a wide-mouthed bottle both for the developing and fixing solutions.

The tone of your pictures is constantly liable to change from different intensity of light acting upon the plate, with the same amount of acid always present in the film. Here let me say a word or two about the arrangement of the light. From the pictures that we generally see it seems a matter of minor importance: whereas it is, in reality, the cause of more than half the bad pictures that are seen. I am myself in the habit of taking very great pains, never considering that my time is thrown away, if it should take me more than ten minutes to arrange in such a manner that it may fall softly, and allow of all the natural shadows that are in the face being retained. I then try for what I see upon the focussing sceeen, and should I fail, I know for a certainty that the plate is either under or over-exposed, or it may be badly developed; but if the light has not been well arranged, you cannot tell near so well the cause of your failures. To develop the picture I do not use protonitrate of iron exactly, but a developer something akin to it. I prepare it as follows: procure a bottle that will contain 8 ounces, weigh out exactly 90 grains of photosulphate of iron, which you must crush well, but not to an impalpable powder, place it in the bottle, then add to it exactly one ounce of water; immediately before any of the iron is dissolved drop in 20 drops of nitric acid, and instantly shake until all the iron is dissolved; it should now be of a lemon color; if the color be a deep yellow, the iron may have been a bad sample, or the nitric acid particularly strong. After you have obtained the exact color described, add five ounces more water, which should just leave the solution colorless, or nearly so; then add six drachms of spirits of wine, to cause it to flow easily over the plate. Everything depends upon the exact preparation of this developer; for if the acid be added in too great quantity, or in such a manner as to destroy the iron too fast, and cause it to blacken, it will not develop at all. The tone of the pictures produced by it are what would be called pure photographs, and are not so fit for coloring with powder colors; but it may be modified to produce any tone by adding only 15 drops of nitric acid and 6 or 7 of glacial acetic. This developer I have now worked with fully four years, and is a preparation of my own, having cost me many hundred experiments in developers with different proportions, before I decided upon it, as the best for constant use. If your material is at all in order, you will get with it a perfect white after all others have failed. There is no part of the collodion process where such nicety of judgement is wanted as in the development. True, we must have a good foundation to work upon; but more may be made with bad collodion skillfully managed, than with a good one that is not understood. I prepare, for the method that I have described a creamy and opaque one, if the collodion, does not contain more than three or four grains of cotton to the ounce, and is not at all inclined to be glutinous.

The fixing solution should clear the plate in about three-fouths of a minute. If it is too strong it is liable to injure the blacks.

The causes of spots and streaks which are sometimes met with on the plate, may be, that the collodion is over iodized, and the bath weak, which would precipitate iodide of silver in the bath, and so cause black spots; the streaks are caused by the mechanical structure of the film being destroyed. Filter your bath and add a portion of your 40 grain solution; it may also be necessary to add to your collodion about one drachm to the ounce of uniodized collodion. Sometimes your pictures will come out quick, leaving the blacks behind; your bath is too acid for your collodion. There may be too much acid in your developer. But more likely than any other thing, the developer is too strong, and must be weakened. There are many other failures that the collodion operator is liable to, but to enter into them in a manner that would be of any service to the novice in the art, would require a much more lengthened description. With a little reflection on the nature of the photographic image, and the means employed to produce it, our difficulties will not be very great, nor their duration very long.

RECOLLECTIONS OF DANNECKER.

There are few things more pleasant to behold than a healthy, happy old age. And when, added to contentment for the experience and the many blessings that a long life has brought, we find a lively sense for the beautiful in nature and in Art—the mind still fresh, though the body be fading—the charm is then quite irresistible: we are drawn towards such a one with reverential affection, and forget in converse with him the wide space that lies between youth and age. And it seems the especial privilege of genius to remain thus ever young. It is the fresh spring imparting everlasting youth.

On Dannecker had this divine gift been bestowed. At near 80 years of age he possessed the warmth of feeling, the elasticity of mind, the pleasurable sense of the beautiful, which we generally look for but in hopeful manhood. He loved to be with the young, and to see and hear their enthusiasm; for his years pressed not heavily upon him, and at heart he felt as fresh and as buoyant as they; and his undimmed eye would sparkle, and over his countenance a flush of brightness would spread, as he talked of what he had done; and by his manner, his voice, and his words, one might have supposed that he was about to start upon the race, and not that it was already run. There was a fire within that prevented the ice of winter from forming. The genial warmth kept not only the blood in his veins, but his affections and sympathies in a strong and equal flow. The selfishness that comes upon us by age he seemed to have shaken from him. He was keenly alive to the remembrance of past friendship, and when he spoke of Schiller it was with all the intensity and fervor of a first love. His name recalled at once the days when they were together. Schiller was again in his presence, radiant and full of life, and the separation of years and of the grave had dwindled down into a recent yesterday. "He was his dearest friend," he said; "they had studied together—here at Stuttgardt—at a school that the king had founded." And all the circumstances attendant on making the bust of his friend flashed at once on his mind. "Schiller said to me, 'You must make my portrait,'" so the happy old man began to relate, "and I answered 'Yes, I will: come to me to-morrow morning early,'" he continued, with an arch look, as if pleased at having managed it so cleverly; "I told him to come early, because I knew that he would then be fresh, and by thus coming to *me* he would be obliged to go into the open air, for he did not live very near me, and would have some distance to walk. And so, he came, and he was excited and pleased, and when he entered my room with a light elastic step—his eye bright, and his whole countenance fresh and cheerful, and his hair off his temples—I determined to make him as he then looked; just as he was when he came in asking for me."

I remarked to Dannecker, that Schiller's brother, who was still living, was very like the bust.

"Yes," he answered, "but much stouter. "He is a man who rides, and walks, and shoots, and goes about, and is much in the open air, and is out early of a morning, and that makes a man look burly, doesn't it? But Schiller," he continued, "studied all day long, and night too, sometimes, and so he was thin," he observed, putting his hand to his face, and drawing it down over his cheeks. "Have we nothing of Schiller up-stairs," he asked of his wife, in order that he might show it me; but it seemed there was nothing that had belonged to him at hand.

The bust of Schiller was in a small room adjoining that one where the other works of the sculptor were arranged. It was veiled. On removing the covering, you might perhaps be struck by the size of the bust, which was much larger than life. But what a majestic countenance! How full of life,—beaming, too, with expression of the noblest kind! How large the forehead, how high and capacious, extending unsinkingly to the very temples uncovered by the blown-black hair! The temple is undulating, and you see the full vein creeping underneath. In the mouth there is great benevolence and sweetness, and its expression is gentle and benign. The face is full of "traits," and you soon understand that it was not possible to make it on a smaller scale.

A strange feeling possessed me while in that lonely room, in presence of the veiled bust, and I trod cautiously, as though moving along a chamber where the remains of one whom I had loved were lying.

Dannecker was of short statue, but hale and hearty, although so old. His face was rather flushed, like that of a man who has lived too much in the open air. His eye—what fire and lustre were there! His whole countenance was brightened by it. He had gray hair, which fell back in long venerable locks. His forehead was broad, and resembled Schiller's, except that it did not extend, like his, to the very temples.

He spoke about Art and of Rome. Putting his face close to mine he said, whispering rather in an earnest manner, "These feet of mine carried me to Paris, and then to Rome. Yes, I was four years at Rome; I should have liked to stay longer, but I could not; the king sent for me to come back." And by his manner it was clear that though he would have preferred to stay at Rome, he felt pride and pleasure in being recalled to his native country by his sovereign. "I was sorry to quit Rome," he added, "but I was very grateful to his Majesty."

Of Schiller's bust he said that he would not part with it, that he should always keep it by him. "It shall not leave the country; it must remain in Germany, in this land of Wurtemberg. It shall remain here in Stuttgartd," he exclaimed with the greatest energy, his fine eye sparkling with a look of triumph, as though he felt that his name and Schiller's would hereafter be mentioned together, and be united in the memories of their countrymen. He told me he had been often asked to sell the bust, but he would not: "Nothing in the world should make him do so. No," he said, "I must keep it."

When Lady Murray was at Stuttgartd, she went often to visit Dannecker. He said, "She has a work of mine, Psyche. She was a great friend of sculpture. Here," pointing to an engraving of one of Canova's works, "Canova sent me that. Lady Murray brought it me from Rome. How beautiful it is! How fine that hand pointing to heaven, and this drapery, too! Oh, Canova was a most loveable man; he was so good and so friendly. And he was merry, too, and full of life. Sometimes he would run into my room on tiptoe to surprise me," and as he told me this, his eyes sparkled with pleasure at the recollection of those happy days. 'Oh, yes,' he added, 'Canova was a kind man!'

On taking leave of Dannecker, I asked permission to come again, a request which he readily granted. "Certainly, come when you like." The man who was at work below told me that during the last six months Dannecker had done nothing; but that no piece of sculpture ever left his house without his own hands having worked at it. There was one most beautiful work there, a recumbent figure of Sappho. He had sold this but he had caused it to be rebought. How artist-like—how like my own dear friend, John Constable!

Friday, June 18*th*, 1837.

Went again to Dannecker's. He was at the window in his usual white jacket and white waistcoat, as I crossed over to his house. After I had been some time in his atelier, he joined me there. I was in the little room where the bust of Schiller was placed, and sitting before it. After he had shaken hands and shut the room door, which he had left open on entering, he seated himself beside me before the bust. After a while he rose, and standing on tiptoe told me to do the same, and so look at the bust from above. Then I was too look *up* at it, and then *into* the face, and then at it in profile. It seemed as if, while looking on that countenance, the gulf which was between them was forgotten.

He afterwards spoke of his "Ariadne," and asked if I had seen it. I told him often I went to look at it. "It was quite by chance," he said, "that I came to do it. It was a curious circumstance. At that time I had my atelier in the palace, and there was a young girl there the most beautifully formed of any I knew. So I asked her if she would sit to me. She said 'Yes,' and she did so with drapery. I then asked her if she would sit to me uncovered. She said she would, if I would make something particularly fine. Well, I came home and thought about it, and at last I determined she should be an Ariadne. I made a sketch, and I said," (speaking with much energy and fire,) "she shall sit upon a panther. And so I made her.

There was a model of the statue in the room, and we walked round it. "Stoop down," he said, taking hold of me when we came to the feet, "stoop down, and look upwards: look how high it seems to be," and he then led me behind and made me observe the fine flowing line of the back. In the adjoining room was the beautiful figure of "Sappho." He dwelt upon it with a most complacent look. "He had sold it," he said, "but afterwards his wife rebought it. *She* would have it for herself: it is hers, not mine." There was, too, a group in clay of "The Fates," a mere sketch, but very fine indeed. One figure was spinning the thread; another, who was holding it, looked astonished as she turned and saw the third, who held the fatal shears, calmly sleeping. It is an exquisite group. "She ought to cut the thread," said Dannecker, "but she sleeps." "You might make something wonderfully fine of that," I observed. "Yes," he answered, in a low, significant voice, "but I have no more time!" I knew what he meant, and said nothing. C. B.

WARNING TO PHOTOGRAPHIC ARTISTS.

Our photographic friends will do well to take warning from the following extract from a Cape paper, in which it is stated that Dr. Atherstone, an eminent photographer, had nearly poisoned himself:—"It appears that, in removing the stains of nitrate of silver from his hands with that deadly poison, cyanide of potassium (the plan commonly adopted by photographers), he suddenly felt a glow through his whole frame, accompanied by a tremulous feeling. The thought instantly flashed across his mind that some of the poison had been absorbed by some scratches or cuts on his hands which he had forgotten. He washed his hands instantly, taking ammonia and wine. But the symptoms increased; his sight grew indistinct, his memory was impaired, and a sense of fainting warned him that a poisonous dose had been absorbed. He then tried cold affusion, with temporary relief; and a powerful shower bath gave him great relief for a time, but the symptoms returned at intervals of a few minutes; the jaws fell constricted, and there was a spasmodic action of the muscles of the arms, parched throat, and the sense of faintness. In three hours these symptoms left, and he fell asleep. The next day he suffered from great exhaustion. This case shows the necessity of extreme caution on the part of photographers and others in the use of this higly poisonous salt. The following will be found a safe and equally efficacious mode of removing the stains of nitrate of silver from the hands:—Moisten the stains with a saturated solution of iodide of potassium in water, and afterwards with nitric acid, diluted with two parts of water, then wash in a solution of hyposulphite of soda."—*Madras Spectator.*

Personal & Art Intelligence.

— We hinted in a former number, that another attempt was to be made to organize a new National Photographic Society, on an original basis. We shall now proceed to lay this plan before our readers. All those photographers to whom it has been explained have signified their approval, and promised their aid. The plan, it will be perceived, has much that is original, and possesses one great advantage over all other systems of organization that have been attempted or proposed—it is self-sustaining and is calculated to be a source of profit to every member instead of expense. Its imperfections, if any, can be remedied. It appeals not only to the artistic taste and ambition of the photographer, but also to his pecuniary interests. It is easily managed, and those who avail themselves of all its privileges, can toil through life with a lively sense, that, no matter what misfortune may suddenly befall him, his family will be provided for. Thus his troubles and vexations will be made lighter—his greatest anxieties will be assuaged, his mind will be left freer scope to pursue every phase presented to him by his art.

We shall say but little, at the present time, as to the merits of an organization of this kind, as we wish to give our readers time to think over it and express their opinions; we, therefore, invite communications on the subject, and at the same time invite prompt subscription from all those whose approval it meets, in order that a speedy organization may be effected. The names of such gentlemen can be forwarded to us.

We would add, that in all large towns sub-councils may be formed, for better intercourse between distant members. The plan is as follows:

The association to be a Photographic Mutual Benefit Assurance Association, with a capital stock of $50,000, in shares of five dollars each.

The Association to consist of practical and amateur photographers.

Subscribers to be limited to 100 shares each.

The same laws governing other Insurance Companies to govern this—with such other laws and rules as may be determined on from time to time by the Association.

Shareholders to be entitled to assure at a less premium than non-subscribers.

Rooms to be established in New York (and other large cities if thought advisable), for the permanent exhibition and sale of photographs. On all pictures sold, a per centage to be allowed the association. The sale of pictures to be confined to such as will not interfere with the legitimate business of the practical photographer.

An annual distribution of prizes among such members as may enter pictures for competition—the judges for awarding these prizes to consist of six gentlemen, who shall be selected from among men of known ability and integrity, and not connected directly with the Photographic Art. The manner of selecting these judges to be determined by the association.

The net profits of the association to be divided among the shareholders according to the number of shares held by each. The dividend to be semi-annual.

The officers to consist of a president, secretary, practical photographer (to have charge of the exhibition rooms), and a board of directors, whose duties shall be determined by the association. The president, secretary and photographer, to be salaried officers.

The association to assure lives, personal property, and real estate.

Clubs may be formed among its members in different sections of the country, for the purpose of reporting and discussing subjects of importance connected with the art, and for the greater facility of interchange and exchange among members.

The capital stock to be paid in within one year after the organization of the association; 25 per cent. as soon as all the shares are taken; 25 per cent. within three months thereafter; 25 per cent. at the end of eight months, and 25 at the end of the twelfth month, or sooner if required by law.

Other points of practical interest may suggest themselves to those who read this plan, which might be incorporated with advantage. This plan, such as it is, we present for careful consideration and trust it will receive such, and if approved, if by only a small portion of the thousands of photographers who are spread over this broad and prosperous land, that it will meet with speedy adoption.

We cannot compare the supineness of the American photographer in regard to this matter to the Englishman's activity with any degree of patience. It is the greatest reproach to all engaged in the Art in this country, more particularly to those who make pretensions to the title of first class artists: who daily fill the papers with fulsome self laudations—highfalutin appellatives—who reap rich harvests of pecuniary gain, and, in a measure, the approbation of the public. The Art, except so far as it administers to their pecuniary ambition—the very lowest kind of ambition—is left to take care of itself. However, what could not appeal to their tastes and talents as artists, may be better appreciated when combined with the *great American principle* "get money," and we cannot but think that when once interested in the measure—no matter what the means used to obtain the result—its literary, scientific and artistic merits, will gradually command that interest and love justly their due. There are those among our photographers who are not entirely amenable to this reproach, for they have done all they could to bring about the desirable result. It is to them, therefore, we would most strongly appeal, to once more put their shoulders to the wheel, and with new vigor try the plan here presented to them. We feel confident that the result will be of vast importance to the art and the artist.

— Mr. Letts of Dundee, N. Y., has sent us two specimens of the different style of Atrephograph pictures which have lately been introduced to the public, in order that we may distinguish between his invention and that of others. We have to acknowledge that the styles are decidedly unlike, and undoubtedly produced by different manipulation. These differences are so marked, that as Mr. Letts was the first to give the name (as he claims) to his peculiar style, we think it not quite right to apply it to another style, the results of which are not at all analogous. The *Atrephograph* proper, is certainly the most pleasing, as it is by far the most brilliant, and in respect to detail and roundness, it is quite equal to the other. On the whole, we think Mr. Letts is really entitled to originality in his Atrephograph process, for we have never before seen anything resembling them, neither do we remember ever having seen them described. They approach very closely a fine mezzo-tint engraving—such as those usually executed by that admirable artist, Sartin of Philadelphia.

There are none of the instruments now on hand such as you desire, but the first finished will be sent you on the terms you request.

— G. D. Wakely.—We appreciate the force of your argument; and you will perceive that we had already adopted a method to obviate the difficulty.

— E. P. Huyler.—We have seen Mr. Kellogg's patent shield, and think very favorably of the principle—but we are of the opinion that the judgment of those who have practically tested it, should be more valuable to the inventor and more convincing to the photographer than ours. We refer you to the advertisement on our cover for such testimony as shall satisfy you. We cannot add anything to what we have already said in regard to the Hallotype, and we see no reason for changing our opinion.

— Paul Crickett.—All your letters that have been received have been promptly answered, and the Journal and books sent by mail.

— Messrs. Davie and Francois have opened a very fine suit of rooms for photographic purposes at Saratoga Springs. The reputation of Mr. Davie as a photographer, and of Mr. Francois as a painter had preceded them, and their business is consequently already large. These gentlemen do not devote themselves entirely to the real, but occasionally draw upon the ideal for subjects of art; Mr. Francois having already painted several compositions which have met with ready sale.

— M. P. Simons.—This gentleman has shown us another new style of photograph. The photograph itself he does not claim as new, but he considers the manner of treating it after printing and toning, for the purpose of rendering it proof against fading, as entirely original. He covers it with a peculiar kind of varnish which, while it is perfectly flexible, presents the appearance of a hard enamel. These pictures he has named *Enamelled* Photographs. The effect is quite excellent. Mr. Simons book—

"Instructions for Coloring Photographs," has been published since our last. From the hasty glance we have been able to give it, while lying upon Mr. Anthony's counter, we are prepared to endorse the following, from a Philadelphia paper:

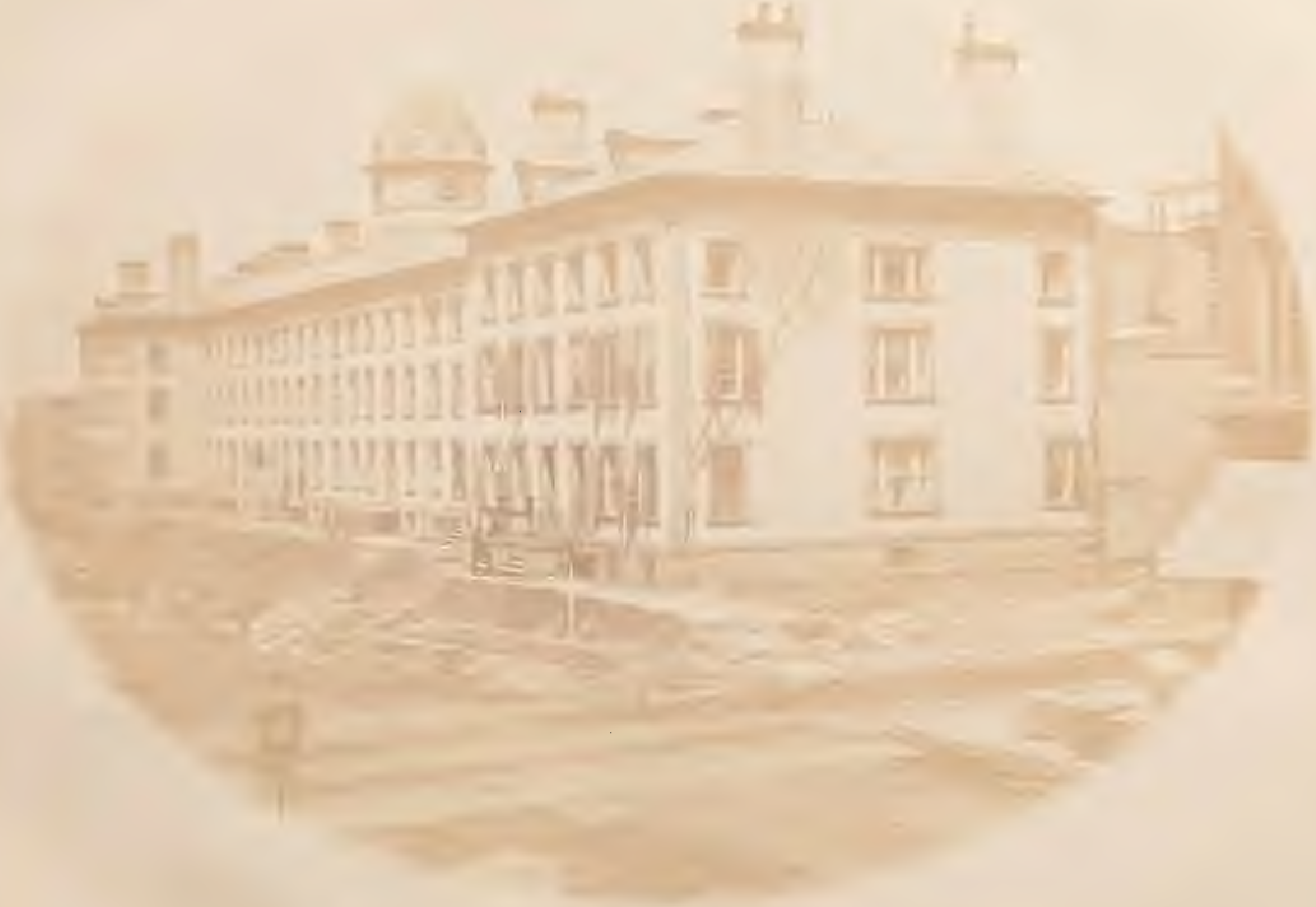
"M. P. Simons, daguerreotypist, of this city, has issued a small volume intended to instruct students in the art of coloring photographs. The instructions are very full and clear, both in reference to the preparation of the colors and the manner of working them. The proper flesh tints are prepared upon an engraved palette, set in as a frontispiece to the volume, and every tint is in the directions, alluded to by the number. With very little practice in water-color painting, the student will find, with the aid of these instructions, that he will soon be able to produce a satisfactory portrait, having an ambrotype groundwork."

— Random Sketches, or What I Saw in Europe: From the Portfolio of an Artist; by F. D. B. Richards. This is a very pleasant book of European travel; describing all those points of observation most interesting to the artist. Its style and nature may be inferred from the series of articles on the same subjects which recently appeared in the *Photographic & Fine Art Journal*. The parts most interesting to the photographer, however, will be the photographic illustrations, which are very good, and prove the capability of photography to illustrate books of every description with as great facility as the art of engraving; and we should say, from our own experience, quite as cheap—for small editions much cheaper.

— Our Subscribers have been repeatedly informed that, (owing to the loss of the proper memoranda) it is necessary for them to send us a list of the photographs they *have had* for 1856, in order to receive the ballance due them; otherwise we do not know what to send, as every one did not receive the same picture in the same number. Those of our subscribers who have not paid subscriptions for *last year*, will receive none until they have paid up.

— R. Knecht.—We owe you an apology. We thought the matter attended to four weeks ago—but your list got mislaid and gave the impression that they had been sent and the letter filed away. We hope you have received them before this. We have had much to contend against for the last few months; but we have made a change which we trust will bring things all right and enable us to be perfectly prompt.

— Mr. A. Bogardus has presented us with a very good photographic view of Old Columbia College, long celebrated as one of the lions of New York, and now in the course of demolition. The proof is a good one and will be much sought after by those who have spent their youthful days under its roof.



VIEW OF OLD COLUMBIA COLLEGE, NEW YORK.

Negative by E. L. Walker.

From the London Art-Journal.

ART IN THE UNITED STATES.

The happy subsection of "Yankeedom" from whose attractions in Nature and Art I pick suggestions for my present letter is—in area—the very smallest daughter in our great family of nations—so small comparatively, that she is pettingly and patronizingly called "Little Rhody" by her bigger sisters—prone to brag (with a native orator) of the possession of "larger lakes, broader valleys, higher hills, longer rivers, and faster folks than England, or anywhere else *dar* have!" Her entire domain is but thirty-seven by forty-seven miles in extent; her population hardly reaches one hundred and fifty thousand; and she sends (senators excepted) but two representatives to Washington to the thirty-three of New York. Diminutive, though, as she thus is in body, I shall show you that she has a very large soul, and is, though least, by no means last here, in the grand march of human progress. Her enterprise gave birth (it may be almost said) to our now stalwart commerce and in her workshops was sung the lullaby of our mighty manufacture. Stately ships from all seas sought her ports long before our present chief maritime towns grew into their fame; and she can now show you within her territory the first cotton-mill ever built in America, and (in ratio with her area and population) a greater variety, extent, and success in Art-industry, than any other state of the Union. Physically, nature has decked her with becoming grace, and in moral and mental growth, as well as in social refinement, she is eminently distinguished. She has sent out into the world her quota of Art-workers, and she possesses a fair share of Art-treasures. Lastly, she is a liberal and appreciative patron of the *Art-Journal;* for your agent in this city tells me that his monthly sales exceed two hundred copies! here, you see, is a varied and interesting text wherefrom to preach.

It was in other days, long gone by, that the Indiamen and the Whalers, at which I have hinted, whitened their waters with their venturous sails. It was not ordered that commerce should be the "mission" of "Little Rhody;" so she has slipped her great cables, and now holds only to a respectable foreign intercourse and a very lively coasting trade. Enough, though, of Indian and of ocean-wealth comes in to help the development of the liberal spirit in which she was born and nurtured, and to lay the foundation of the prosperity and happiness everywhere so evident in the homes and in the hearts of the people.

As the commercial life of Rhode Island subsided, the manufacturing activity began, and grew, until now, as I have intimated, its achievement is not surpassed in any part of the Western world. This industry is developed in every variety of product, but more especially in the making and the printing of cotton goods, in machinery and all kinds of iron-work; and in jewelery and silver ware of form and value *ad libitum.* The total value of the annual product of the cotton-mills in Providence is set down at nearly a million of dollars, and that of the print-works (which are among the chief establishments of the kind in America) as little less than three millions. The rollers used in the printing are all engraved at home, and, as far as possible, the designs employed are made in the factories, or procured from native artists.

The jewelery of various kinds made in Providence amounts yearly to more than two and a half millions of dollars, and the iron products contribute as much more to the annual industrial estimates of the city. In the first of these manufactures no less than fifty-six establishments are actively employed, and in the second twenty-two—producing immense supplies of gold and silver wares, both of ornament and of use; all kinds of steam machinery, and every variety of tools and of other iron implements and articles.

The manufacture of screws is a matter of special interest here, both from the fact of the very admirable and efficient manner in which the work is done, and from the remarkable circumstances that, of the entire product of these little implements in the United states, the greater part (eighty-seven one-hundredths is the exact figure) are made in the Providence establishments. The labor occupies one thousand hands, with the result of an annual value of over a million dollars. More than six hundred different sizes and kinds of screws are made in the two factories here, which turn off each day fourteen thousand gross, with a daily risiduum of three tons and a half of iron turnings or chips. Screws were first made here by machinery, in 1834, in a very humble way, but since that time the buisiness has constantly increased, and the manufacture has been wonderfully facilitated and perfected by the continual simplification and improvement of the machinery employed. The precision and rapidity, of the almost life-like mode of work of the three machines used to complete the screw is most curious and interesting: first the cutting of the wire of the required length, with the formation of the head—ninety per minute; next (which is the labor of the second machine) the trimming of the head and the cutting of the groove; and afterwards, with the third apparatus, the making of the thread; the last two of these wonderful little machines seemed to me to possess a most precise knowledge of their duty, and to take the greatest delight in the performance of it.

Another special manufactured product of Providence—with the mention of which I must pass on from the Industrial to the Fine Art labor of our little state—is that of butt-hinges. This labor was begun here (and for the first time, to any extent, in the United States) in the year 1842. It was also almost the first manufacture of loose-joint butts in the world—and, in this want, Providence has ever since continued to supply nearly "all creation."

Have I not, even thus hastily, demonstrated my fact—of the contributions of Rhode Island to American Art-labor in its more material shapes? and is there not something yet left to be said for her in a more æsthetic manifestation? *Attendez*: Gilbert Stuart, one of the two or three "old masters" in American Art, and one of the first of our painters in respect both to time and talent—he who has left to his country and to the world, the accepted memory of the form and face of Washington—was a son of Rhode Island, born in days long passed, on the shores of the Narraganset,—near where the waters of that beautiful bay (the great heart of the state) come out from the sea,—in an old snuff mill, yet standing, and carefully chronicled in my sketch-book, with other venerable and honored shrines of poetic and historic association here. It is not necessary that I should discourse at this time upon the scope and characteristics of Stuart's genius, of his vigorous and truthful portraiture, his clear, bold, honest execution, and his magic color, vivid upon his canvas to-day as once upon his palette;—this is all familiar to the Art-lover the world over, and will be re-told in every history of the Pencil. The pictures of Stuart may be found among the heirlooms of many families in Rhode Island. The state possesses two repetitions, from his own hand, of his famous full-length of Washington—one is preserved in the Capitol at Newport, and the second in the other state house at Washington.

Another honored son of Rhode Island was Malbone, one of the happiest painters in miniature which this or any country has produced. "Whoever," it has been rightly said, "writes the history of American genius, or of American Art, will have failed to do justice to the subject if he omit the name of Malbone." Many of his best works (they were not numerous, for he died very early) are to be found in this vicinage: a famous group of three three-quarter length female figures, called "The Hours," is carefully treasured in the Anthenæum of this city. It was presented by the artist to his sister, and after her death was purchased for twelve hundred dollars, and given to the present owners—the money being subscribed through the solicitations of a few patriotic and Art-loving ladies. The picture was painted during the artist's visit to London in 1801, and was praised by West as a work which "no man in England could excel."

Washington Allston, who was an intimate friend and fellow-student of Malbone, said of him that "He had the happy talent, among his many excellences, of elevating the character without impairing the likeness; this was remarkable in his male heads; and no woman ever lost any beauty from his hands—nay, the fair would often become still fairer under his pencil; and to this he added a grace of execution all his own." There is, or was, a work of Malbone's in Boston, which Stuart used to visit once a year, charging the owner to take great care of it, "as it was decidedly the finest miniature in the world."

The picture of "The Hours," by which Malbone will be best known hereafter, is in size six by seven inches, upon a single sheet of ivory. It contains, as I have said, three young female figures, representing the past, the present, and the coming hours, or according to the Greek personification, and to the artist's inscription upon the back of the work—"Eunomia, Dice, and Irene." In composition the work is remarkably simple; and in the subtile changes of expression and character, the sentiment of the story is daintily and clearly revealed, while in colors it is marvellously pure and brilliant. The only grave mistake in the work, to my feeling, is the careful representation of the costumes and headdress in vogue when it was painted, but obsolete and disagreeable now. Malbone was a native of Newport, and he died in Savannah, in Georgia, in 1807, at the age of thirty-two.

Among her living artists, Rhode Island has a worthy successor, in many points, to her departed Malbone, in Mr. Richard M. Staigg. There is a force and fulness and flexibility of manner in Mr. Staigg's miniatures, a strength and massiveness of portraiture and character, and a rich fleshiness of color not often seen in even good works in his department. He is well employed in his studio at New York in the winter, and through the summer months at his native home of Newport. This ancient capitol of Rhode Island is at this time one of the most fashionable of American watering-places: but happily the good old truthful spirit of the town seems to leaven the hollow lump of the exotic influence, instead of being itself dissipated and destroyed. This fortunate result is helped not a little by the circumstance, that the intrinsic attractions of the region—in its healthful climate, its beautiful nature, and its genuine social life—lead the best of its visitors to make it their permanent summer abode, in their own villa homes, instead of in the demoralising vagabondism of hotels. Thus, in Newport, the explosive, high-pressure temperature of an ever-moving throng is powerfully controlled by the healthful conservative faith and grace of domesticity.

But I am wandering somewhat from my immediate theme. Let me sail, by island and headland, twenty-five miles up the bay back to Providence. The stranger in this city will not fail to remark a novel speciality everywhere in the architecture, public and private. Here the stately, and there the picturesque edifice—the church tower and the cottage porch; and all of such humble material as the despised brick. Looking thus upon the "deformed and transformed," he will feel at once that the wand of some unique magician has been waved over all. The city owes this great and peculiar beauty to its wise and honorable appreciation of the genius of one of its own young architects, Mr. T.A. Tefft, who has most successfully made the use of brick in picturesque construction a matter of especial study. Of his works here and elsewhere, I shall have occasion to speak more particularly when I write, as I shall soon, about our Architectural Art. Mr. Tefft is a Rhode Islander, born, I believe somewhere in the neighborhood of the painter Stuart's ancestral snuff-mill.

Rhode Island possesses an Art-association, located here, in Providence. It is a new society, and thus far has presented only two annual exhibitions. It has eligible apartments, very moderately furnished with busts and casts for the use of students. In the preface to the last years catalogue the managers say, "That we must one day have a School of Design here, supported by our own manufacturers, and in turn supporting them, appears inevitable. The only question is one of time." The preface is right; and I am sure the decisive "question" will be satisfactorily answered before long. Let the people see to it. Of this "Rhode Island Art Association" I shall have more to say at another season. Among the Art-possessions of Providence is a Madonna and Child (an oil picture) by Overbeck; works by Stuart, Copley, and Malbone; some of the productions of Mademoiselle Rosa Bonheur; pictures by Leutze, Mornel, Durand, Doughty, Woodville, Kensett, Stearns, Heely, Hinckly, Osgood, Sully, Morse, Terry, Hoppin, Gigueux, Coleman, and Weber, and other American artists, with a reasonable sprinkling of "old masters," good, bad, and indifferent. *A propos*, let me here ask your congratulations upon the promising circumstance of the rapid disappearance from our private galleries of the "old masters," who have ruled there so long and so despotically, to the detriment of the better productions of our own easels.

I regret that I must close my letter with the sad record of the death of that Nestor of American landscape-art, Thomas Doughty. He died in New York, after a long illness, on the 24th of July last, at the age of sixty-three years. He was one of the earliest of our painters who distinguished himself in that department of study to which he was devoted; and at one time he deservedly held a very high position—but he outlived both his genius and his fame. He has left behind him, scattered all over the country, a great number of works of very unequal merit. Those executed in the acme of his power will be always treasured as rare examples of true Art. His favorite and happiest themes were brooky nooks and pastural passages, with alternating copse and lawns, and far-off peeps of gentle hills and water: all seen in such moistened, vapory atmosphere, and such greyish-clouded skies, as the climate of England so often produces. His works owe their charm—though generally very carefully and nicely wrought—less to their individuality of character in the objects represented, than to the general sentiment which they always either exhibit or suggest. He worked more from feeling than from knowledge; and thus it was, perhaps, that when in years and cares, in privations and pain, his heart failed him, so failed his hand also. He went to the easel from the humble position of a leather-dresser, quite uneducated in Art or otherwise, at the late age of twenty-eight, and burthened with a wife and child dependent upon his labor. "Contrary to the wishes of all my friends," he once said, "I resolved to pursue painting as a profession, which, in their opinion, was a rash and uncertain step. My mind, however, was firmly fixed; I had acquired a taste for Art which no circumstance could unsettle." In respect to material reward, those predictions of his friends were unhappily better realized than were his own stout hopes; for despite his best successes, his life was one of great pecuniary struggles,—though this painful sequel must in justice be charged to his own faults of character, as much as to the faithlessness of his Art. Very sincerely yours, T. A. R

From the Jour. of the Phot. Soc.

WASHING OF POSITIVE PRINTS.

To the Editor of the Photographic Journal.

March 9, 1857.

Sir,—As the smallest suggestion may possibly be of value to photographers, the following may assist your correspondents W. Walker and "N.," in No. 49, and others, in washing their positive prints. There is no novelty in what I am to state, as it is merely an application of what was described formerly by Mr. Stewart in iodizing his papers, which suggested to me the idea that if it was good for one thing it might be good for another, and I have found it effective, economical as regards time, &c., and without even the danger that might attend a sponge in pressing delicate tissues like paper in a saturated state. It is simply taking my proofs from the fixing bath and placing them in a tall cylindrical vessel under an exhausting syringe, which, when worked with tolerable vigor for a little while, with two or three changes of the water, has answered my expectations in removing superfluous chemicals.

If through my recommending to my fellow-laborers an application so simple, they find the plan answer with them as well as with myself, I shall think that Art and Science are additionally indebted to me, which will in some degree compensate for the abhorrence in which I am told I am held by Nature.

VACUUM.

For the Photographic & Fine Art Journal.

A FEW WORDS ON THE HONEY PROCESS.

After making a great many experiments on the Dry and Preservative Processes, I have come to the conclusion that the Honey Process is much the easiest and most simple one which any artist of ordinary ability, may practice with considerable certainty. For the benefit of those who may wish to experiment, I will detail the formula I use and give a few plain directions, which, if closely followed, will with certainty, produce a perfect negative one week after being submitted to the silver bath. I have kept plates so prepared 10 days without any apparent diminution of sensitiveness and intensity.

No, 1. Anthony's Iodized Collodion.

No, 2. Bath.

Nitrate silver	4 ounces.
Pure water	60 “
Iodide of ammonium	10 grains.
Acetic acid, No. 8	30 drops.

After standing over one night, filter through cotton moistened with alcohol.

No. 3.–Water	3 ounces.
Pyrogallic acid	3 grains.
Citric acid	1 “
Acetic acid No. 8	$\frac{1}{2}$ drachm.
No. 4–Nitrate of silver	1 “
Water	8 ounces.
No. 5.–White crystallized honey	1 pound.
Cold water	1 pint.

Dissolve, filter, and add—

Acetic acid No. 8	1 ounce.
No. 6.–Water	1 pint.

Hyposulphate of soda to saturation.

Coat a plate, say whole size, with collodion, and let it lay in the bath sufficient time that on removal there may be no streaks; drain well, and wash off all the free nitrate of silver, which I do by immersing the plate in a pail of pure water, raising it up and down for a minute and a half; drain and pour over the plate a portion of the honey mixture, driving off all the water; throwing away the first portions, then coat it again with the honey, which is done in the same manner as with collodion, and returning the second and third portions back to the bottle again: then hang the plate up by means of a patent clothes pin to dry, placing a piece of blotting-paper at the lower corner to assist in draining the plate. When dry, place the plate in a dark box or plate-holder, to be used at your convenience. I find that five minutes with a single lens of 14 inch focus and with a stop of $\frac{3}{8}$-inch diameter, to be sufficient time to obtain a good negative. After exposition to the light, you again immerse the plate in the same water, if convenient, that the plate was first put in to wash off the honey, and soften the film—say for not less time than two minutes; then flow over the plate as much of No. 3 as will stand on it, and drain it off into a glass containing 20 drops of No. 4, and return the whole on the glass plate when the picture will soon make its appearance. If the mixture should turn red before the picture is fully developed, throw it off the plate and wash it, and return a fresh quantity of the developing solution prepared as above, the second and third time, should it be necessary to bring it up to a proper density, wash well and fix with No. 6. and varnish.

I send you a positive from a negative prepared as above for your examination. J. J. B.

From the Liverpool Photographic Journal.

DESCRIPTION OF THE PHOTOGRAPHIC PROCESS,

Used in taking the Photograph of the Moon.

BY WILLIAM CROOKES.

The glass employed for taking the lunar negatives* was that known as extra white color patent plate; the operation of cleaning the surface, which is one of especial importance, was effected in the following manner:—

The glasses were dipped into and then well rubbed over with a hot solution of caustic potassa; then after washing with water they were transferred to hot nitric acid (1 part of strong acid to 3 of water) where they were allowed to remain for about half an hour.

A piece of soft wash leather was plentifully rinsed, first in a warm dilute solution of carbonate of soda, and afterwards in clean water, and then well wrung until all the superfluous water was removed. The glass plates were taken from the nitric acid and rinsed in abundance of clean water and then rubbed well on every part with the damp leather. This removed most of the superficial moisture, and the final drying was effected by another piece of wash leather prepared in a similar way but allowed to become perfectly dry. Just previous to being used the plates, held in a pneumatic plate holder, had the last polish given to them by briskly rubbing with a warm piece of fine diaper (which had also been previously washed in soda and water and then well rinsed and dried) until the moisture condensed from the breath evaporated evenly and uniformly, especially guarding against the slightest contact between the surface of the glass and the fingers.

The plate was now held with its clean side downwards until the collodion was about to be poured on, and every particle of dust, which was easily seen by bringing the source of light, the under surface of the plate, and the eye, nearly in the same line, was gently wiped off by passing a warm piece of fine cambric lightly across. Care was also taken to have the atmosphere of the room as free as possible from floating particles, and the dried collodion usually adhering to the neck of the bottle was scrupulously removed.

The collodion was poured on and the plate rendered sensitive in the usual manner. As the temperature both of the equatorial and operating room was seldom far from the freezing point, the great diminution of sensitiveness which that circumstance would have occasioned, was obviated by having the nitrate of silver bath and the developing solution warmed to about 80° Fahr., and also by slightly warming the plates before using. The source of light was a fishtail gas burner in the outer room and shining close to the orange glass window of the dark room.

The operations of developing and fixing were conducted in the usual manner, no particular precautions, save such as would suggest themselves to any careful manipulator, being taken. After fixing, the pictures were well and carefully washed in warm water, dried before a fire, and after scratching the description or name on a corner, varnished.

The negatives which I thus obtained were exquisitely beautiful, and so minute that I could not obtain paper with a sufficiently fine surface whereon to print copies which would do them justice. It was evident that they would bear magnifying several diameters and still remain sharply defined. To effect this, a half-plate combination of lenses, by Ross, was screwed the reverse way into large sliding camera body, 10 inches high and 11 inches wide, and capable of sliding from 18 inches to 3 feet in length. At the end, opposite to the lens, was a groove, to admit of a focussing glass, or dark slide, for the sensitive plate. A smaller camera body was screwed on to the other end of the brass work, having at the end opposite to the lens a sliding box, to hold the small negatives of the moon. A reflector was placed in front of all, and so arranged as to be capable of moving in altitude on a hinge at the lower part, and thus reflect the diffused light of the sky through the negative and lens, parallel to the axis of the latter.

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* See Photographic & Fine Art Journal for April, vol. x. no. iv. p. 103,.

Preliminary trials showed me that there was no use in magnifying the small pictures more than twenty times, as beyond this the individual parts began to get confused and indistinct. This magnifying cannot, however, be effected at once; in the small negatives the lights and shades are the reverse of what they are in nature, consequently a print on paper therefrom gives the light and shade correct. A photographic copy of a negative, however, produces a positive by transmitted light, and a print from this would have the shadows light, and the light parts dark. Consequently, in magnifying a negative, to produce still a negative, an intermediate transmitted positive must first be taken, and this in its turn magnified, when it will give a negative.

The relative distances between the small negative, the lens, and focusing glass, were so adjusted that an image of the former, enlarged to about two diameters was thrown upon the latter, care being taken that the light from the sky was reflected parallel through the centres of the negative and lens by means of the mirror. The aperture of the lens was then stopped down to about half in inch by means of a diaphragm, and the focus most carefully obtained by sliding the body of the large camera in or out. It was found necessary to verify this by experimental trials at different short distances, on each side of the observed focus, as it was difficult to judge accurately with the eye on the ground glass, owing to the roughness of the latter and the feebleness of the light.

A picture, or rather many pictures, were now taken, and the one which by transmitted light most truthfully resembled a paper print from the small negatives, was reserved for further magnifying.

This was affected absolutely in the same manner as the former. The negative being removed, and the positive being placed in its stead, further magnifying gave a large-sized negative.

Although this process seems very simple, it is impossible to estimate the difficulties which I had to overcome before arriving at the beautiful results which I laid before the society. The double copying had a tendency to slightly exagerate the light and shade, and this could only be obviated by exposing the plates for such a time that, with the feeble light at my command, it was a verging on decomposition. Particles of dust, too, seemed most pertinaciously to fix themselves upon the prominent mountains, giving rise to craters where none should be; and even my finished pictures are not perfectly free from these faults, although each negative is the representative of upwards of a hundred failures and a month's work.

PREPARATION OF THE MATERIALS USED.

The soluble paper for the collodion was prepared in the following manner:—a mixture was made of

Nitrous Acid of commerce	sp. gr. 1·43	4	fluid ounces.
Nitric Acid............	" 1·37	4	" "
Sulphuric acid..........	" 1·82	8	" "

When the temperature of the mixture had cooled down to 120° Fahr., one sheet of Swedish filtering paper torn up into small pieces was completely immersed in the mixture, and allowed to remain therein for about half an hour. It was then thrown into a large pail of water, and the paper removed and placed on a sieve under a running tap for about 10 minutes. It was then washed in very weak solution of ammonia and afterwards in plenty of water and allowed to dry spontaneously in the air.

The collodion was made with—

Ether sp. gr. 0·725 (previously freed from acid by rectification from dry caustic potassa)..............................	5 fld. ozs.
Absolute alcohol......................	3 " "
Soluble paper, dried at 212° Fahr.......	50 grains.
Pure iodide of cadmium................	30 "

The alcohol and ether were mixed together, and then the paper and iodide of cadmium added, they dissolved in a few minutes with a little shaking. As soon as the solution was complete it was allowed to stand for 24 hours, then half of the clear, supernatant fluid was carefully decanted into a clean, well-stoppered bottle for use.

The nitrate of silver bath was made by dissolving 1 ounce of crystallized nitrate of silver, perfectly pure and neutral, in 2 ounces of water, then, with constant stirring, adding a solution of 4 grains of iodide of cadmium in 1 ounce of water, and a quarter of an ounce of the above iodized collodion, and then water to make up the volume to 10 ounces. This was allowed to stand for a few hours at a temperature of 80° Fahr., and then filtered from the undissolved iodide of silver and precipitated paper. A glass bath was used in preference to gutta percha, and as above stated it was heated to 80° Fahr. when used.

The developing solution consisted of—

Pure pyrogallic acid....................	8 grains.
Crystallized citric acid................	16 "
Water................................	8 fluid ounces
Alcohol................................	½ "

This developing solution is very slow in its action, 15 or 20 minutes being frequently required, but it ultimately produces negatives of great vigor and freedom from stains.

The fixing solution employed was the ordinary nearly saturated solution of hyposulphite of soda: and the pictures were varnished with the usual solution of amber in chloroform.

For the Photographic & Fine Art Journal.

DAGUERREOTYPE AND ITS DESTINY.

Mr. Editor:—No one can rejoice more heartily than myself, at the rapid progress and vast development of the sun-painting Art since its inauguration by Daguerre, barely eighteen years ago. I can look with pleasure and admiration on the many varieties of the solar picture, viz. the Photograph, the Ambrotype, the Hallotype, &c., which have sprung from the original impress upon silvered copper, produced by the great Frenchman.

I cannot, however, help regretting that, in the brilliancy of the new discovereries, the Daguerreotype should have sunk so far into neglect, for, through its intrinsic merits, to speak of nothing beside, it deserves a better fate.

To touch on some of these merits is the principal object of this brief article, and to this object, after a few preliminaries, I I shall proceed.

In the production of the sun-picture, whatever its class, there are two distinct departments—the mechanical and artistic.

The operant, who will best succeed in the *former*, is the one who *observes* most carefully, manipulates most skillfully, and most dexterously handles all implements and appliances.

Viewed *artistically*, the Heliographic Picture is the work of him who presides over the camera. It is, in fact, the product of his thought and feeling, *variously* manifested, as, *e.g.* in determining the *position* of the subject or sitter, in disposing judiciously the lights and shadows falling upon him, and finally, what is most essential of all, in calling forth and arresting the *highest* and *best expression* of the subject.

Here then, as must be obvious to all, something *more* and *other* than *mere mechanical aptitude* is indispensable to produce pictures of eminent merit. This is the proper sphere of the *born artist*—him who, together with rare perceptive powers and a sensitive, enthusiastic temper—possesses a matured judgment, and an accurate appreciation of the beautiful in nature and in art.

With such endowments, and such alone, can he produce portraits, which, instead of being mere shadows of senseless, lifeless forms, are truthful, life-like representations of intelligent, sensible persons, so felicitously pictured, that we may almost read, in the mute impression, the mental workings of the subject at the instant of taking.

Such characteristics impart to the portrait, a genuine enduring value. And the artist, who, being organically dowered with the genius especially appropriate to this department, persists in faithfully exercising the same upon every successive subject, will, within no lengthened interval, give to his establishment, a *reputation* of far greater worth, than any amount of money-capital would be.

And, what to the artist by organization must be a most grateful thought, he may, the while, aid potently towards exalting his favorite Heliography to that honorable rank among the Fine Arts, which by the misjudging sciolists in æsthetic lore is so often denied it, but which it so amply merits and will, at no distant day, universally receive.

The Daguerreotype Picture, when skillfully executed, upon a pure silver surface, in the highest style of the Art, is still one of the wonders of our age; and with the sole exception of the sometimes obscuring reflection from the polished metallic surface, remains, as yet, unequalled in its beauty of tone and its minute fidelity and truthfulness to nature, by any other among the *multitudinous present* varieties of the Heliographic Art.

Were the Daguerreotype, in its existing state of perfection, to be brought out *new* at the present moment, it would, beyond all question, create a strong sensation, and be enthusiastically and universally lauded.

My own belief is, that the Daguerreotype is destined to remain *permanently* a favorite with the public. I believe also, that this species of pictures will continue to be taken by first-class operants in the leading establishments, in connexion with other popular varieties of Heliography, and will always constitute an important and profitable branch of the Art.

Among the thousands who, in this country, have *professedly* practised this, the most difficult of all the known varieties of Heliography to excel in, there are, comparatively speaking, very few, who have achieved eminence by their superior execution, or their production of what deserved, in every sense of the term, the name of Pictures.

Among these I rejoice, that I can freely specify Messrs. Southworth and Hawes, Masury and Silsby, and John A. Whipple of Boston,—J. Gurney and M. M. Lawrence of New York, Hesler of Chicago, and Fitzgibbons of St. Louis.

These, and perhaps a few beside, have contributed to render this department popular and lucrative; and, I believe, they still continue to devote to this, in connexion with other branches, the same skill and the same unremitting attention and energy, as in times foregone.

I trust they may persist in so doing; and that thy may find themselves remunerated amply by *golden* returns, while they do honor alike to themselves and to the memory of their great leader and exempler, Daguerre.

Should I find occasion to communicate again with you, Mr. Editor, I may may take up the Photograph, the Ambrotype, the Hallotype, &c. M. A. Root.

Phila. May 16, 1857.

For the Photographic & Fine Art Journal.

A NOVEL METHOD OF CLEANING OLD GLASS,

Philadelphia, May 11, 1857.

Friend Snelling:—Since I saw you, I have been experimenting a little upon removing the silver stains from negative and positive glasses. Endeavoring to arrive at some reliable method of producing their surfaces chemically pure, I think now that I have effected my object; at least it is the best mode I know of: and if you can devote a little space for it in the *Journal*, I would like to have you publish it, that we may have the opinions of others upon its practicability.

Put into a clean bottle—

Nitric acid	1 ounce.
Mercury	½ "

Let this mixture stand until the acid takes up all the mercury, and the liquid becomes clear, which will require about twenty-four hours. When it is ready for use, apply with cotton fixed to a glass rod; rub well for a few minutes, wash off with clean water, and you will have a plate perfectly clean. Some glasses which have been laying around and have become oxidized with the silver upon them, may require somewhat longer time—this I found to be the fact. But let the photographer have a little patience, and he will restore glasses—long since condemned—to their former usefulness.

If you think this paper will be of any use to your readers—whose interests I know you have always at heart—publish it, if not, twist it up and light your pipe with it; I would much rather it should end in *smoke*, than be thrust, if useless, upon your readers. Yours, truly,

M. P. Simons.

From the London Art Journal.

THE MONKS OF THE MIDDLE AGES.

BY THE REV. EDWARD L. CUTTS, B.A.

Our business in the present article is to give a sketch of the monks of the middle ages, so far as Art is concerned with them. One branch of this subject has already been treated in Mrs. Jamieson's, "Legends of the Monastic Orders." This accomplished lady has very pleasingly narrated the traditionary histories of the founders and saints of the orders, which have furnished subjects for the greatest works of Mediæval Art; and she has placed monasticism before her readers in its noblest and most poetical aspect. Our humbler aim is to give a view of the familiar daily life of ordinary monks in their monasteries, and of the way in which they enter into the general life without the cloister;—such a sketch as an Art-student might wish to have who is about to study that picturesque mediæval period of English history for subjects for his pencil; and who is aware that the religious orders occupied so important a position in middle-age society, that they cannot be overlooked by the historical student; and who feels that the flowing black robe and severe intellectual features of the Benedictine monk, or the coarse frock and sandalled feet of the mendicant friar, are too characteristic and too effective, in contrast with the gleaming armor and richly-colored and embroidered robes of the sumptuous civil costumes of the period, to be neglected by the artist. Such a student would desire first to have a general sketch of the whole history of monachism, as a preliminary to the fuller study of any particular portion of it. He would wish for a sketch of the internal economy of the cloister;—how the various buildings of a monastery were arranged, and what was the daily routine of the life of its inmates. He would seek to know under what circumstances these recluses mingled with the outer world. He would require accurate particulars of costumes and the like antiquarian details, that the accessories of his picture might be correct. And, if his monks are to be anything better than representations of monkish habits hung upon lay figures, he must know what kind of men the middle age monks were intellectually and morally. These particulars we proceed to supply as fully as the space at our command will permit.

Monachism arose in Egypt. As early as the second century we read of men and women who, attracted by the charms of a peaceful contemplative life, far away from the fierce, sensual, persecuting heathen world, betook themselves to a life of solitary asceticism. The mountainous desert on the east of the Nile valley was their favorite resort; there they lived in little hermitages, rudely piled up of stones, or hollowed out of the mountain-side, or in the cells of the ancient Egyptian sepulchres, feeding on pulse, and herbs, and water from the neighboring well.

One of the frescoes in the Campo Santo, at Pisa, by Pietro Laurati, engraved in Mrs. Jamieson's "Legendary Art," gives a curious illustration of the eremitical life. It gives us a panorama of the desert, with the Nile in the foreground, and the rock caverns, and the little hermitages built among the date-palms, and the hermits at their ordinary occupations: here is one angling in the Nile, and another dragging out a net; there is one sitting at the door of his cell shaping wooden spoons; and here, again, we see them engaged in those mystical scenes in which an over-wrought imagination pictured to them the temptations of their senses in visible demon shapes—beautiful to tempt or terrible to affright; or materialized the spiritual joys of their minds in angelic or divine visions: Anthony driving out with his staff the beautiful demon from his cell, or wrapt in ecstacy beneath the Divine apparition.* Such pictures of the early hermits are not unfrequent in mediæval art: there is a good small one in a fifteenth-century Psalter MS. in the British Museum. (Domit A., xvii. f. 84, C.)

We can picture to ourselves how it must have startled the refined Græco-Egyptian world of Alexandria when occasionally some man, long lost to society and forgotten by his friends, reappeared in the streets and squares of the city, with attenuated limbs and mortified countenance, with a dark hair-cloth tunic for his only clothing, with a reputation for exalted sanctity and spiritual wisdom, and vague rumors of supernatural revelations of the unseen world; like another John Baptist preaching repentance to the luxurious citizens; or fetched, perhaps, by the Alexandrian bishop to give to the church the weight of his testimony to the ancient truth of some doctrine which began to be questioned in the schools.

Such men, when they returned to the desert, were frequently accompanied by numbers of others, whom the fame of their sanctity and the persuasion of their preaching had induced to adopt the eremitical life.

It is not to be wondered at that these new converts should frequently build or select their cells in the neighborhood of that of the teacher whom they had followed into the desert, and should continue to look up to him as their spiritual guide. Gradually, this arrangement became systematized; a number of separate cells, grouped round a common oratory, contained a community of recluses, who agreed to certain rules and to the guidance of a chosen head; an enclosure wall was generally built around this group, and the establishment was called a *laura.*

The transition from this arrangement of a group of anchorites occupying the anchorages of a laura under a spiritual head, to that of a community living together in one building under the rule of an abbot, was natural and easy. The authorship of this cœnobite system is attributed to St. Anthony, who occupied a ruined castle in the Nile desert, with a community of disciples, in the former half of the fourth century. The cœnobitical institution did not supersede the eremitical, both continued to flourish together in every country of Christendom. The first written code of laws for the regulation of the lives of these communities was drawn up by Pachomius, a disciple of Anthony's. Pachomius is said to have peopled the Island of Tabenne, in the Nile, with cœnobites, divided into monasteries, each of which had a superior, and a dean to every ten monks; Pachomius himself being the general director of the whole group of monasteries, which are said to have contained eleven hundred monks. The monks of St. Anthony are represented in ancient Greek pictures with a black or brown robe, and often with a tau cross of blue upon the shoulder or breast.

St. Basil, afterwards Bishop of Cesaræa, who died A.D. 378, introduced monachism into Asia Minor, whence it spread over the East. He drew up a code of laws founded upon the rule of Pachomius, which was the foundation of all succeeding monastic institutions, and which is still the rule followed by all the monasteries of the Greek church. The rule of St. Basil enjoins poverty, obedience, and chastity, and self-mortification. The habit both of monks and nuns was, and still is, universally in the Greek church, a plain, coarse, black frock with a cowl, and a girdle of leather, or cord. The monks went barefooted and barelegged, and wore the Eastern tonsure, in which the hair is shaved in a crescent off the fore part of the head, instead of the Western tonsure, in which it is shaved in a circle off the crown. Hilarion is reputed to have introduced the Basilican institution into Syria; St. Augustine into Africa; St. Martin of Tours into France; St. Patrick into Ireland, in the fifth century.

The early history of the British church is enveloped in thick obscurity, but it seems to have derived its Christianity from an Eastern source, and its monastic system was probably derived from that established in France by St. Martin, the abbot-bishop of Tours. One remarkable feature in it is the constant union of the abbatical and episcopal offices; this conjunction, which was foreign to the usage of the church in general, seems to have obtained all but universally in the British, and subsequently in the English church. The British monasteries appear to have been very large; Bede tells us that there was no less than two thousand one hundred monks in the monastic establishment of Bangor at the time of St. Augustine's connection with it, in the sixth century, and there is reason to believe that the number is not overstated. They appear to have been schools of learning. The vows do not appear to have been perpetual; in the legends of the British saints we constantly find that the monks quitted the cloister without scruple. The legends lead us to imagine that a provost, steward, and deans, were the officers under the abbot; answering, perhaps, to the prior, cellarer, and deans of Benedictine institutions. The abbot-bishop, at least, was sometimes a married man.

In the year 529 A.D., St. Benedict, an Italian of noble birth and great reputation, introduced into his new monastery on Monte Cassino—a hill between Rome and Naples—a new monastic rule. To the three vows of obedience, poverty, and chastity, which formed the foundation of most of the old rules, he added another, that of manual labor (for seven hours a day), not only for self-support, but also as a duty to God and man. Another important feature of his rule was that its vows were perpetual. And his rule lays down a daily routine of monastic life in much greater detail than the preceding rules appear to have done. The rule of St. Benedict speedily became popular, the majority of the existing monasteries embraced it; nearly all new monasteries for centuries afterwards adopted it; and we are told in proof of its universality of acceptation, that when Charlemagne caused inquiries to be made about the beginning of the eighth century, no other monastic rule was found existing throughout his wide dominions. The monasteries of the British church, however, do not appear to have embraced the new rule.

St. Augustine, the apostle of the Anglo-Saxons, was prior of the Benedictine monastery which Gregory the Great had founded upon the Celian Hill, and his forty missionaries were monks of the same house. It cannot be doubted that they would introduce their order into those parts of England over which their influence extended. But a large part of Saxon England owed its Christianity to missionaries of the native church still flourishing in the west and north; and these would doubtless introduce their own monastic system. We find, in fact, that no uniform rule was observed by the Saxon monasteries; some seem to have kept the rule of Basil, some the rule of Benedict, and others seem to have modified the ancient rules, so as to adapt them to their own circumstances and wishes. We are not surprised to learn that under such circumstances some of the monasteries were lax in their discipline; from Bede's accounts we gather that some of them were only convents of secular clerks, bound by certain rules, and performing divine offices daily, but enjoying all the privileges of other clerks, and even sometimes being married. Indeed, in the eighth century the primitive monastic discipline appears to have become very much relaxed, both in the East and West, though the popular admiration and veneration of the monks was not diminished.

In the illuminations of Anglo-Saxon MSS. of the ninth and tenth centuries, we find the habits of the Saxon monks represented of different colors, viz. white, black, dark brown, and grey.† In the early MS. Nero, C. iv., in the British Museum, at folio 37, occurs a very nice group of monks in white habits; another group occurs at folio 34, rather more stiffly drawn, in which the margin of the hood and sleeves is bordered with a narrow edge of ornamental work.

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* There is no need to put down all these supernatural tales as fables or impostures—spiritual excitement induces such appearances to susceptible natures; similar tales abound in the lives of the religious people of the middle ages, but they are not unknown in modern days: Luther's conflict with Satan in the Wartzburg, to wit; and Colonel Gardiner's vision of the Saviour.

† Strutt's "Dress and Habits of the People of England."

About the middle of the ninth century, however, Archbishop Dunstan reduced all the Saxon monasteries to the rule of St. Benedict, not without opposition on the part of some of them, and not without rather peremptory treatment on his part: and thus the Benedictine rule became universal in the West. The habit of the Benedictines consisted of a white woollen cassock, and over that an ample black gown and a black hood. In working and travelling they wore over the cassack a black sleeveless tunic of shorter and less ample dimensions.

The female houses of the order had the same regulations as those of the monks; their costume too was the same, a white under garment, a black gown, and black veil, with a white wimple around the face and neck. They had in England, at the dissolution of the monasteries, one hundred and twelve monasteries and seventy-four nunneries.*

The Benedictine rule had now been all but universal in the West for centuries; but during this period its observance had gradually become relaxed. We cannot be surprised if it was found that the seven hours of manual labor which the rule required, occupied time which might better be devoted to the learned studies for which the Benedictines were then, as they have always been, distinguished. We should have anticipated that the excessive abstinence, and many other of the mechanical observances of the rule would soon be found to have little real utility. We are not therefore surprised, nor should we in these days attribute it as a fault, that the obligation to labor appears to have been very generally dispensed with, and that some humane and sensible relaxations of the severe ascetic discipline and dietary of the primitive rule had also been very generally adopted. Nor will any one who has any experience of human nature, expect otherwise than that among so large a body of men—many of them educated from childhood to the monastic profession—there would be many who were wholly unsuited for it, and whose vices brought disgrace upon it. The Benedictine monasteries, then, at the time of which we are speaking, had become different from the poor retired communities of self-denying ascetics which they were originally. Their general character was, and continued throughout the middle ages to be, that of wealthy and learned bodies; influential from their broad possessions, but still more influential from the fact that nearly all the literature, and art, and science of the period was to be found in their body. They were good landlords to their tenants, good cultivators of their demesnes; great patrons of architecture, and sculpture, and painting; educators of the people in their schools; healers of the sick in their hospitals; great almsgivers to the poor; freely hospitable to travellers; they continued regular and constant in their religious services; but in housing, clothing, and diet, they lived the life of temperate gentlemen rather than of self-mortifying ascetics. Doubtless, as we have said, in nearly every monastery there were some evil men, whose vices brought disgrace upon their calling; and there were some monasteries in which weak or wicked rulers had allowed the evil to prevail. The quiet, unostentatious, every-day virtues of such monastics as these were perhaps not such as to satisfy the enthusiastical seeker after monastical perfection. Nor were they such as to command the admiration of the unthinking and illiterate, who are always more prone to reverence fanatacism than to appreciate the more sober virtues; who are ever inclined to sneer at religious men and religious bodies who have wealth; and are accustomed to attribute to a whole class the vices of its disreputable members.

The popular disrepute into which the monastics had fallen through their increased wealth, and their departure from primitive monastical austerity, led, during the next two centuries, viz., from the beginning of the tenth to the end of the eleventh, to a series of endeavors to revive the primitive discipline. The history of all these attempts is very nearly alike. Some young monk of enthusiastic disposition, disgusted with the laxity and vices of his brother monks, flies from the monastery, and betakes himself to an eremitical life in some neighboring forest or wild mountain valley. Gradually a few men of like earnestness assemble round him. He is at length induced to permit himself to be placed at their head as their abbot; requires his followers to observe strictly the ancient rule, and gives them a few other directions of still stricter life. The new community gradually becomes famous for its virtues; the Pope's sanction is obtained for it; its followers assume a distinctive dress and name; and take their place as a new religious order. This is in brief the history of the successive rise of the Clugniacs, the Carthusians, the Cistercians, and the orders of Camaldoli and Vallombrosa and Grandmont; they all sprang thus out of the Benedictine order, retaining the rule of Benedict as the groundwork of their several systems. Their departures from the Benedictine rule were comparatively few and trifling, and need not be enumerated in such a sketch as this: they were in fact only reformed Benedictines, and in a general classification may be included with the parent order, to which these rivals imparted new tone an vigor, as the Benedictine family.

The first of them was the Clugniac order, so called because it was founded, in the year 927, at Clugny in Burgundy, by Odo the abbot. The Clugniacs formally abrogated the requirement of manual labor required by the Benedictine rule, and professed to devote themselves more sedulously to the cultivation of the mind. The order was first introduced into England in the year 1077 A.D., at Lewes, in Sussex; but it never became popular in England, and never had more than twenty houses here, and they small ones, nearly all of them founded before the reign of Henry II. Until the fourteenth century they were all priories dependent on the parent house of Clugny, though the Prior of Lewes was the High Chamberlain, and often the Vicar-general, of the Abbot of Clugny, and exercised a supervision over the English houses of the order. The English houses were all governed by foreigners, and contained more foreign than English monks, and sent large portions of their surplus revenues to Clugny. Hence they were often seized, during war between England and France, as alien priories. But in the fourteenth century many of them were made denizen, and Bermondsey was made an abbey, and they were all discharged from subjection to the foreign abbeys. The Clugniacs retained the Benedictine habit. At Cowfold Church, Sussex, still remains a monumental brass of Thomas Nelond, who was prior of Lewes at his death, in 1433 A.D., on which he is represented in the habit of his order.

In the year 1084 A.D., the Carthusian order was founded by St. Bruno, a monk of Cologne, at Chartreux, near Grenoble. This was the most severe of all the reformed Benedictine orders. To the strictest observance of the rule of Benedict, they added almost perpetual silence; flesh was forbidden even to the sick; their food was confined to one meal of pulse, bread, and water, daily. It is remarkable that this the strictest of all monastic rules has, even to the present day, been very slightly modified: and that the monks have never been accused of personally deviating from it. The order was numerous on the Continent, but only nine houses of the order were ever established in England. The principal of these was the Charterhouse (Chartreux), in London, which, at the dissolution, was rescued by Thomas Sutton to serve one at least of the purposes of its original foundation—the training of youth in sound religious learning. There were few nunneries of the order—none in England. The Carthusian habit consisted of a white cassock and hood, over that a white scapulary—a long piece of cloth which hangs down before and behind, and is joined at the sides by a band of the same color, about six inches wide; unlike the other orders, they shaved the head entirely.

About one hundred and seventy years after, viz., in 1098, arose the Cistercian order. It took the name from Citeaux (Latinised into Cistercium), the house in which the new order was founded by Robert de Thiesry. Stephen Harding, an Englishman, the third abbot, brought the new order into some repute: but it is to the fame of St. Bernard, who joined it in 1113 A.D., that the speedy and wide-spread popularity of the new order is to be attributed. The order was introduced into England at Wavely, in Surrey, in 1128 A.D. The Cistercians professed to observe the rule of St. Benedict with rigid exactness, only that some of the hours which were devoted by the Benedictines to reading and study, the Cistercians devoted to manual labor. They affected a severe simplicity; their houses were to be simple, with no lofty towers, no carvings or representations of saints, except the crucifix; the furniture and ornaments of their establishments were to be in keeping—chasubles of fustian, candlesticks of iron, napkins of coarse cloth, the cross of wood, and only the chalice might be of precious metal. The amount of manual labor prevented the Cistercians from becoming a learned order, though they did produce a few men distinguished in literature; they were excellent farmers and horticulturists and are said in early times to have almost monopolised the wool trade of the kingdom. They changed the color of the Benedictine habit, wearing a white gown and hood over a white cassock; when they went beyond the walls of the monastery they also wore a black cloak. St. Bernard of Clairvaux is the great saint of the order. They had seventy-five monasteries and twenty-six nunneries in England, including some of the largest and finest in the kingdom.

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* This is the computation of Tanner in his "Notitia Monastica;" but the editors of the last edition of Dugdale's "Monasticon," adding the smaller houses or cells, swell the number of Benedictine establishments in England to a total of two hundred and fifty-seven.

There were other reformed Benedictine orders arose in the eleventh century, viz., the order Camaldoli, in 1027 A.D., and that of Vallombrosa, in 1073 A.D., but they did not extend to England. The order of the Grandmontines had one or two alien priories here.

The preceding orders differ among themselves, but the rule of Benedict is the foundation of their discipline, and they are so far impressed with a common character, and actuated by a common spirit, that we may consider them all as Benedictines.

We come next to another great monastic family which is included under the generic name of Augustines. The Augustines claim the great St. Augustine, Bishop of Hippo, as their founder, and relate that he established monastic communities in Africa, and gave them a rule. That he did patronise monachism in Africa appears probable, but it is not clear that he founded any distinct order; nor was any other called after his name until the middle of the ninth century. About that time all the various denominations of clergy who had not entered the ranks of monachism, priests—canons, clerks, &c.—were incoporated by a decree of Pope Leo III. and the Emperor Lothaire into one great order, and were enjoined to observe the rule which was then known under the name of St. Augustine, but which is said to have been really compiled by Ivo de Chartres from the writings of St. Augustine. It was much milder rule than the Benedictine. The Augustinians were divided into Canons Secular and Canons Regular.

The Canons Secular of St. Augustine were in fact the clergy of the cathedral and collegiate churches, who lived in a community on the monastic model; their habit was a long black cassock (the parochial clergy did not then universally wear black); over which, during divine service, they wore a surplice and a fur tippit, called an *almuce*, and a four-square black cap, called a *baret*; and at other times a black cloak and hood with a leather girdle; according to their rule they might wear their beards, but from the thirteenth century downwards, we find them usually shaven.

There are numerous existing monumental brasses in which the effigies of canons are represented in choir costume, viz., surplice and amice, and often with a cope over all; they are all bareheaded and shaven. We may mention especially that of William Tannere, first master of Cobham College (died 1418 A.D.), in Cobham Church, Kent, in which the almuce, with its fringe of bell-shaped ornaments over the surplice, is very distinctly shown; it is fastened at the throat with a jewel. The effigy of Sir John Stodely, cannon, in Over Winchendon Church, Bucks (died 1505), is in ordinary costume, an under garment reaching to the heels, over that a shorter black cassock, girded with a leather girdle, and over all a long cloak and hood.

The Canons Regular of St. Augustine were perhaps the least ascetic of the monastic orders. Enyol de Provins, a minstrel (and afterwards a monk) of the thirteenth century, says of them, "Among them one is well shod, well clothed, and well fed. They go out when they like, mix with the world, and talk at table." They were little known till the tenth or eleventh century, and the general opinion is that that were first introduced into England, at Colchester, in the reign of Henry I. Their habit was like that of the secular canons—a long black cassock, cloak and hood, and leather girdle, and four-square cap; they are distinguished from the secular canons by not wearing their beard. According to Tanner, they had one hundred and seventy-four houses in England—one hundred and fifty-eight for monks, and sixteen for nuns; but the editors of the last edititon of the "Monasticon" have recovered the names of additional small houses, which make up a total of two hundred and sixteen houses of the order.

The Augustine order branches out into a number of denominations; indeed, it is considered as the parent rule of all the monastic orders and religious communities which are not included under the Benedictine order; and retrospectively it is made to include all the distinguished recluses and clerics before the institution of St. Benedict, from the fourth to the sixth century.

The most important branch of the Regular Canons is the Premonstratensian, founded by Norbert, a German nobleman, who died in 1134 A.D.; his first house being in a barren spot in the valley of Coucy, in Picardy, to which the name of Pré-montré was given, and from which the order took its name. The rule was that of Augustine, with a severe discipline superadded, the habit was a coarse black cassock, with a white wollen cloak and a white four-square cap. Their abbots were not to use any episcopal insigna. The Premonstratensian nuns were not to sing in choir or church, and to pray in silence. They had only thirty-six houses in England, of which Welbeck was the chief; but the order was very popular on the Continent, and at length numbered one thousand abbeys and five hundred nunneries.

The Trinitarians, also from the name of their founder, called Mathurins, and from their object, Brethren of the Redemption of Captives, were a confraternity of the Augustines, founded in 1180 by John de Martha and Felix de Valois—"the Clarkson and Wilberforce of their time," Mrs. Jamieson appropriately calls them—for the redemption of slaves and captives. In the first year of their labors these two men redeemed one hundred and eighty-six Christian captives from the hands the Moors in Africa, the second year one hundred and ten, the third one hundred and twenty. They were introduced into England by Sir William Lucy of Charlecote, on his return from the Crusade, who built and endowed for them Thelesford Priory in Warwickshire, and subsequently they had eleven other houses in England. St. Rhadegunda was their tutelarly saint. Their habit was white, with a Greek cross on the breast of red and blue—the three colors being taken to signify the three persons of the Holy Trinity, viz., the white, the Eternal Father; the blue, which was the tranverse limb of the cross, the Son; and the red; the charity of the Holy Spirit.

Under this rule are also included the Gilbertines, who were founded by a Lincolnshire priest, Gilbert of Sempringham, in the year 1139 A.D. There were twenty-six houses of the order, most of them in Lincolnshire and Yorkshire; they were all priories dependent upon the house of Sempringham, whose head, as prior-general of the order, appointed the priors of the other houses, and ruled absolutely the whole order. All the houses of this order were double houses, that is, monks and nuns lived in the same enclosure, though with a rigid separation between their two divisions. The monks followed the Augustinian rule; the nuns followed the rule of the Cistercian nuns. The habit was a black cassock, a white cloak and hood, lined with lambskin. The "Monasticon" gives very effective representations (after Hollar) of the Gilbertine monk and nun.

The order of our Saviour, or, as they are usually called, the Brigittines, were founded by St. Bridget of Sweden, in 1363. They were introduced into England by Henry V., who built them the once glorious nunnery of Sion House. At the dissolution, the nuns fled to Lisbon, where their successors still exist. Some of the relics and vestments which they carried from Sion House have been carefully preserved ever since,* and are in the possession of the Earl of Shrewsbury. Their habit was like that of the Benedictine nuns—a black tunic, white wimple and veil, but is distinguished by a black band on the veil across the forehead.

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* Mrs. Jamieson, p. 137.

The Nuns of Fontevraud was another female order of Augustinians, of which little is known. It was founded at Fontevraud in France, and three houses of the order were established in England in the time of Henry II; they are monks and nuns within the same enclosure, and all subject to the rule of an abbess.

The Bonhommes were another small order of the Augustinian rule, of little repute in England; they had only two houses here, which, however, were reckoned among the greater abbeys, viz., Esserug in Bucks, Edindon in Wilts.

Other small offshoots of the great Augustinian tree were those who observed the rule of St. Austin according to the regulations of St. Nicholas of Arroasia, who had four houses here; and those who observed the order of St. Victor, who had three houses.

There were besides a great number of Hospitals; the last edition of the "Monasticon" enumerates no less than three hundred and seventy of them; founded originally by the sides of the high roads for the relief of travellers, and especially of pilgrims, they were at length devoted to the relief of poor and impotent persons, answering to our modern almshouses. These had usually two or three Augustine canons, the prior acting as master of the house, the brethren acting as champlains and confessors; and it is probable that the alms people observed some of the usages of a religious rule. The canons of some of these hospitals had local statues in addition to the general rule and were distinguished by some peculiarity of habit; thus the canons of the hospital of St. John Baptist, at Coventry, wore a cross on the breast of their black cassock, and a similar one on the shoulder of their cloak.

For the Photographic & Fine Art Journal.

PATENT LEATHER PROCESS.

Pittsburg, Pa., May 26th, 157.

Mr. Editor,—Since the introduction of the Ambrotype, I for one (and I have no doubt many others) have felt the necessity of something as a base for collodion besides the Melainotype, mica, and enamelled paper, that could be conveniently cut, to put in lockets. Now every one knows, that has had any experience, that to keep the Daguerreotype buffs, &c. in good order in a room impregnated with turpentine and naptha, from the asphaltum varnish, is no easy task.

Now it appears to me that the Patent Leather Process is the very thing that was required to fill the gap of photographic manipulations. I do not pretend to be the inventor, but as I use this process successfully for lockets, and as there are people as usual travelling through the country fleecing the greenhorns, I thought I would send you a formula that any person taking Ambrotypes successfully, cannot fail in transferring the collodion picture to the leather.

You will please excuse my intrusion upon your valuable time, but as I have received some important information from your *Journal*, I thought it my duty (as well as every other photographer's), to contribute my mite to the advancement of our beautiful Art; therefore, if you think this worthy of an insertion, you and the fraternity are welcome to it.

I am, dear sir, yours respectfully,

Jno. Rogers.

Take 1 ounce of 95 per cent. alcohol, add 8 drops of nitric acid, shake well in a glass stoppered bottle, then take an ambrotype rather lighter than you wish it to be when finished; dry over your spirit lamp or in the oven, lay it on your table collodion side up, and take a mat the size you require, and place it over the picture; then with a sharp pointed stick, run round the inside of the mat which take the collodion off clean if the point is moistened. Then take another piece of wood wedge shape moistened, and rub the remainder of the collodion off the margin of the glass, now color the cheeks with Indian red pretty heavy, and it is ready for the transfer.

Now take a good smooth piece of enamelled leather, and clean it with dry wheat flour and canton flannel; dust off with your duster, pour on your alcoholic preparation as you would collodion, on the leather first then on the picture (do not be in too much of a hurry). Then place the lower edge of your leather on the plate and hold it firm with one hand, and with the other carefully lay the leather on the picture, commencing from the lower edge so as to exclude the air and superfluous liquid; lay another piece of glass on the leather with a weight on it, and it is done. In about five minutes you can carefully feel of the leather, and the picture will be found to adhere to it as firmly as the enamel itself. To prevent prisms when put in lockets, pour some of your alcoholic preparation in on the glass first, then put your picture in and press it down, and it will give a fine finish, and cement it to the glass.

J. R.

From the New York Daily Times.

THE NATIONAL ACADEMY EXHIBITION.

The month of May, which has undergone of late years such serious mutations of physical character as to be no longer recognized by its friends, can still fortunately be identified by its anniversaries. We know that May comes in with the philanthropist, and goes out with the painters. In the merry olden days of rose-garlands and May-poles, philanthropists would doubtless have been the more welcome of the two. But now that we sing the old song in a new sense and congratulate ourselves exceedingly that "it is not always May," the painters who scare away the odious Spring will be classed with the swallows who bring in the pleasant Summer. Very glad then we are to see the doors of the National Academy once more opened—the good old doors of the good old place. For our first word with the artists must be a word of thankfulness that they have got back into their old rooms. Not that these rooms are by any means ideal rooms, as Mr. Rossiter's "Wise and Foolish Virgins" have no doubt by this time sufficiently satisfied all gazers, but because they are so much better than the dingy styles into which the pictures of the year have so long been crammed and crowded.

The Academy Rooms are sufficiently capacious and sufficiently well-lighted to allow the Hanging Committee a fair chance of making themselves personally odious to many painters. For there are so many good lights to be had, that everybody who is not lucky enough to secure one will be sure to swear Punic wrath against the sly barbarians of the Committee. But that is the affair of the painters, and not ours. We may be allowed to delectate ourselves in such pictures as we can pleasantly see without meddling with the politics of the atelier. The only economical criticism we have to make concerns the portress of this Paradise, who strikes us as being a trifle too "fierce and froword" for the minister of such a gentle brotherhood. Passed the Scylla of this stern lady, however, and the Charybdis of the cave into which canes and embrellas vanish, we find ourselves in a very agreeable saloon.

For what saloon is more agreeable than the large room of an Academy Exhibition in the opening of a new season? There quiet broods, refined, warm, thoughtful quiet—there voices are lowered, and the minds of men are pleasantly busy. And all about you glow the new thoughts of many lovers of the beautiful, who have tried each in his way to make the beautiful lovable to all the world besides. Our first criticism is always a general sensation of comfort, repose and cheerful excitement. This is a tribute to Art itself, and he who does not pay it, has never tasted the secrets of the palette and the easel.

Then for the artists, man by man! How rapidly and anxiously we scan the list of names at the end of the catalogue, partly for the certainties of pleasure assured to us by the names we know now, and partly for the hopes of pleasure inspired by the new names that we shall always know hereafter! Few of those who may be figuratively called the veterans are this year missing from the roll, though some of them are not very brilliantly represented on the walls.

The widest gap is made by the utter absence of Darley, who can hardly be said to be present in virtue of a few bank note vignettes. For though a bank note is by no means a bad thing —and though a man may show himself as clever, or as stupid, in sketching a vignette as in frescoing the dome of a cathedral, we hold Darley to higher things, and pass him by therefore as willfully *incognito* on this occasion. The landscapists, on the other hand, are in force. Kensett, Church, Cropsey, Durand, Hubbard, are all here, and others, the white-robed of last year, past their candidacy, now ascend to a stable rank. Shattuck, Coleman, Hart, are names which we shall henceforth expect to see.

Of course no particular system has been adopted in hanging the pictures. There is no reason why you should begin or end at one point rather than at another. You may wander about with us and stop where you and we shall please. As, for instance, before this, No. 23, which arrests everybody, and holds you the third time more firmly than the first. You hardly need be told that these are the Andes spreading out so vast and far before you—peak beyond peak—with such wonderful depths and the breadths of valleys between. For the waving palms, the giant ferns bring before you the realities of tropical America. You do not wonder that the man who could so completely master a landscape so grand and vast as this, should have been the successful lover of Niagara. Mr. Church's pictures, like Turner's, are triumphs of intelligent audacity. Like the great Englishman to whom, in truth, aye, and in boldness of hand, he is certainly not inferior. Mr. Church handles the grandest effects of Nature as lightly as the least. He understands that it is not really more difficult to paint the most magnificent mountain landscape, or the most sublime cataract of the New World, than it is to paint the neatest church-porch, or the prettiest village green of the Old, provided the painter will be contented in the one case, as in the other, to paint precisely what he sees, and not what he thinks he ought to see, or imagines that he has seen, or fancies that somebody else will expect to see; the latter of these mistakes being the snare into which the vast majority, not of painters alone, but of artists in general, and private men and women, do continually fall.

One of Mr. Church's qualities is the tact with which he seizes his "point of view." This is admirably displayed in his "Niagara." He has given up the attempt to represent the Falls from below, perceiving, no doubt, that one of the most striking features of the Cataract—its grandeur—must be inevitably belittled by the introduction upon the canvas of the surrounding landscape, for it is impossible to put on the canvas the mighty thunderous roar which concentrates the attention upon the Fall itself in the actual scene. The actual curve and plunge of the river make up the body of his picture, while the lovely landscape of the far, with charming banks, is deliciously subordinated, and takes its fitting place as a relief and not as a distraction of the mind. So in this picture of the "Andes of Ecuador," Mr. Church has seized the ample scope of the mountain landscape, and conveys that idea to our mind rather than the ideas of gigantic height and mountain bulk, which no painter can do more than adequately suggest. Your first thought on gazing into the picture (for so luminous and real is the atmosphere that it is really almost a misuse of language to talk of gazing *upon* it) is of the wonderful *expanse* before you. By slow degrees you come to feel the sentiment of altitude and majesty growing out of your fuller sense of this expanse, and relieving it by the harmonious contrast and balance of emotions. There is nothing raw and unredeemed in the picture. The intense brilliancy of the pervading sunlight is made endurable by the wealth of luxuriant verdure, and by the delicious coolness of the dusky-green ravines through which the rivers flow and the cascades leap, diffusing a delicate haze of softest vapor. The truth of such a picture as this is not the truth which has been made a lie by the Pre-Raphaelites—it is not the truth of a photograph, but pure, pictorial truth—truth, that is, to the *perceptions of a human being*. This is the truth which redeems all the falsehoods of Claude Loraine throughout his career, as well as all the willfulness of Turner in his later days. Mr. Church does not always exhibit such a mastery of this truth as in this No. 23, in the "Niagara," or in the exquisite No. 522, the "View on the Maddalena," which is one of the freshest, and sweetest, and most seducing pictures of the exhibition.

The "Autumn," No. 143, with all its splendor of color, is not so true an atmospheric sentiment—and singularly enough, for such a man is not quite correct in drawing. But the No. 23 and No. 522 would suffice to put their author at the head of our landscapists. As we remember the gorgeous descriptions of *Amyas Leigh*, in looking upon the former—so the latter recalls the most tranquil chapters of *Paul and Virginia*, and suggests a truer and happier image of "Primitive Life" than Mr. Rossiter's rather melodramatic notion of that subject gives us in No. 5. Mr. Rossiter is a skillful painter, but where did he ever see such moon in such a sky? He has combined in this picture an effect of vaporous moonlight with an effect of flaming torches, and if we stop at the mere mingling of tones where the intermediate radiation of the torchlight mingles with the diffusion of the moonlight, we must pronounce the combination to have been cleverly enough handled. But look at the color of the savages in the boat, and you would suppose that the torches and the moon together made up a dawning day! The composition of the picture, too, is awkward and crowded. It does not please the eye.

The same criticism is provoked at once by the more conspicuous No. 163. The "Wise and Foolish Virgins," we believe, won a prize at the Exhibition in Paris, and we infer that this distinction must have been accorded to the handling of the picture, which is precisely the quality of it least appreciable in its present position. A more utterly unimaginative picture of an imaginative subject we have rarely seen. The "Wise Virgin," who would be called "a very decent body" in Scotland, is walking along quite composedly with a kind of jar in her hand, and is apparently very unconscious of the presence of the "Foolish Virgin," who is sauntering across her path in a very *neglige* costume, and with a very *degage* air, accompanied by a small negro page, who shown his teeth, and holds up a pink umbrella over his mistress' head. Now what has such a composition in common with the parable it is supposed to illustrate? It might just as well be set down in the catalogue as the meeting of Rebecca and Cleopatra, or a view in the streets of Naples.

Mr. Rossiter has clearly missed his domain in venturing into the realm of illustrative and imaginative art. He has only not gone quite so far wrong as Mr. Hall has, in his indescribable assault upon the character and memory of the late William Shakesphere. There is a tradition, we know, that "Glorious Will" came to his end in consequence of a fever brought on by over-indulgence in good Sherry with "rare Ben Johnson." But this was in his jovial days of repose. The poet who created "Portia" and "Imogen," formed his reveries in his brain and not in his bottle, and we shall never forgive Mr. Hall for presenting the first of English poets as sunken into a boosy slumber, and surrounded by a troop of dowdy divinities, the "Visions of his Dream." There is a good arm-chair in the picture, and a group of neat substantial females, which facts will doubtless secure for the painter an admiring public, and we shall not quarrel with that if he will have the kindness to re-baptize his handiwork by a less pretensious title.

It is a relief to turn from such a picture to the quiet, unobtrusive, and promising No. 75 near by.

Mr. Lambdin? The name is new and (oh, rare conjuncture!) the picture is new also. The subject naturally is rather old, for it is the oldest subjects which make the newest picture, the newest poems, the newest of all new things that are good. In a perfectly simple room sits at her piano a fair young girl, such a girl as we all know or should like to know—sufficiently pretty and sufficiently unconscious that she is so—a warm-hearted girl, you would say favored by Heaven with a sweet voice to utter her warm heart's emotions. She has been singing the pathetic songs that Shelley loved—the "sweetest song that tell of saddest thought"—and her soul, and her voice, and the song together, have entered the heart of her friend, who stands by her side, and buries her face in her hands. That must be a face worth seeing, we feel and are half angry with the art which kindles a wish it never can grant. Mr. Lambdin has not lived in a vain show it is clear. If this picture does not satisfy you of this, look at another from the same hand, and of similar character—No. 121. Here are two lovers—or two who are like to be lovers soon—talking together in the twilight, which reddens the distant sky, and deepens, the light of the heart in the maidens face. Both pictures exhibit the same qualities—simplicity, sentiment without sentimentality, and that fidelity in material details without which sentiment and taste may make an amateur but never an artist. We congratulate Mr. Lambdin on his success, and shall look well for his name in the future.

Here, too, is another new name not likely to be forgotten soon. Mr. James Hart has not misnamed his landscape, No. 65, in calling it a "Summer Afternoon." It a work full of quiet power and sincere feeling, and we are glad to see that it had already found a purchaser. There is nothing conventional in Mr. Hart's treatment of a subject which is a perpetual temptation to conventionalities. His distance is treated with not less of thought than of sentiment; his coloring is simple and skilful; his lights are handled with very remarkable truth, and unaffected effectiveness. A charming little glimpse of "Scotland," near by this picture, No. 56, also bears the name of Hart whether William Hart and James be brothers by blood, we do not know; but brothers in the delicacy and force of their artistic qualities they certainly are. The sentiment of No. 56 would remind us of Kensett were it not for a thought more of freshness and vivacity in the tone of the picture than is commen in those of that amiable, accomplished artist, and were not Kensett himself so close at hand. No. 72 is one of Mr. Kensett's most agreeable cabinet pictures. Fond as Kensett is of amethyst or sapphire hills, and of his soft horizons—mellowed down with floating vapors and the declining light of day—we find him more at home in reaches of quiet upland, or in stretches of still sea-beach. The less he deals with clouds the better his pictures always are. Compare the astonishing and delicate exactness which distinguishes Church's handling, whether of cumbrous masses or cirrous wreaths with Kensett's indications of similar sky phenomena, and you will be very apt to agree with us, that his strength is in dealing with the deep-blue or the misty-grey heavens, and above all, in producing simply atmospheric effects, over which his control is amazing. What a delicious little piece of tranquil nature he has caught and fixed forever in the frame of the No. 72! Turbulent spirits must grow calm in gazing on such a scene and the painter who can so transfuse his pencil with the spirit of the sky and fields needs no sermon preached to him by evangelical Ruskins or Ruskinites.

Still more charming is the artist's landscape numbered 482. This is one of the gems of the exhibition, and it is the painter's very best vein. If the pleasant weather had not yet come we should find it here, and it is so pleasant when we find it that to leave it again is not easy. Yet, as we must go for to-day, we prefer to go with such thoughts in our mind as this scene suggests, that we may come back again in an amiable mood to talk of the many other pictures which demand a word from us, and combine to make up, on the whole the most interesting exhibition which the Academy has ever given us.

From the Liverpool Photographic Journal.

COLORING POSITIVE COLLODION PORTRAITS.

Should the following be thought worthy of a place in your valuable columns for the benefit of amateurs, and others, who may wish to color positive collodion portraits, it is quite at your service. Having used both frequently, I can assure you that they will be found quite satisfactory.

1st. Add ten grains of good izinglass to one oz. of water; dissolve by placing the bottle in hot water, and well shaking it, filter while warm. Having well washed the collodion plate from cyanide, pour this on; dry the plate before a clear fire, and the usualy dry colors may then be applied; and by previously breathing on the plate any depth of color can be obtained. The plate must then be varnished in the usual way.

2nd. Into a wide-mouthed bottle put some Canada balsam, and add some spirits of turpentine; let it stand a day or two, well shaking now and then. Mix a few drops of this with one oz. of turpentine; filter it through blotting paper; then varnish your picture and pour some of the mixture on. Let it dry before a clear fire. The picture will take the dry colors readily; but if the pencil sticks to the varnish, increase the quantity of spirits.

Yours, truly,

C. H. G.

For the Photographic & Fine Art Journal.

HELIOGRAPHY—ITS WONDERS AND ITS RAPID PROGRESS.

The rapidity with which the Heliographic Art has progressed from the date of its discovery, is truly marvellous. It is now only about eighteen years from the time, when an imperfect image was impressed by Daguerre on a tablet of silvered copper, by a 10, 15 or 20 minutes exposure to the sunbeam.

And what has been achieved in the Art during these few intervening years?

Somewhat like the following:—

Philosophers of deservedly high repute, like Sir John Herschell, the illustrious son of an illustrious sire, and, like that sire, eminently skilled to

> "Unwind the eternal dances of the sky;"

and Sir David Brewster, the discover of the true composition of Light,—amateurs of great opulence and high social state, like Henry Fox Talbot,—skillful theoretic and practical chemists, like Hardwich, Robert Hunt, Fenton, Sparling, Hennah, and others, who wield the *pen* not less ably than the *retort*,—not to specify a host of *collaborateurs* in *sunny* France, the primal home of the sun-picture, so strictly typical of itself,—have unstintingly lavished their time, their gold, and their endeavors upon this exquisite Art, until in various forms and upon diverse material, it would seem to have approximated as nearly to *perfection*, as mortal things can be.

On this point, however, we are slow to pronounce *definitive* judgment.

Now, kind readers, consider for one moment what and how much this Heliographic Art is competent to do for you and for ourselves!

As thus; our affairs or our means may not permit us to plow the briny deep, till, treading the soil of the antique world, we may view the treasures of Art in the shapes of painting, sculpture, and architecture, which have there been accumulated by the consecutive labors of myriads of the sons of genius through thousands of years.

But a mammoth newspaper, like the *London Illustrated News*, dispatches the ablest Heliographers to all quarters of the globe to take and bring back whatever they may encounter worth beholding. Through the instrumentality of that faithful sun, which, unlike the camel's hair brush, *never falsifies* in its delineations, these emissions come home with "presentments," done to the very life of whatever can instruct, charm, or refine in the scenes of alien lands.

Thus Sevastopol, with its Gibraltar-like fortifications and armaments,—the Allied Forces surrounding and battering its mountainous stone-heaps,—the terrible conflicts of Balaklava and Inkerman, with the cannon and musket-smoke, the fierce gallop of the battle-chargers, and the infuriate slashing of the dragoon sabres,—are all set before our eyes as accurately and vividly, almost as though we "had been there to see."

And still better—Rome's mighty Colliseum, and the St. Peter's embodying the genius of Michael Angelo,—the Parthenon, the immortal plain of Marathen, and the Pass of Thermopylæ, the "honied Hymettus," the god-inhabited Olympus, and "Sunium's Marbled Steep,"—Byzantine, now desecrated by semi-barbarian Tartars, though pronounced by one of the greatest of modern sages, the pre-ordained Metropolis of the

Globe,—in a word, whatever of beauty and sublimity, of glory and wonder, whether in Nature or in Art, the elder, earlier-inhabited and far-off lands contain, are stricken upon the silvered tablet, or the paper, or the "immortal" glass by the condescendant sun in copartnery with the skillful Heliographer. So that, sitting by our own hearth-stones we may gaze upon and feast our minds and hearts with the rarest and noblest creations alike of God and of Man.

When we say, then, that knowledge, *acting normally*, is power and wisdom and goodness, judge ye, gentle readers, how measureless our *indebtedness* must be to that wondrous Art, which flings wide open for us the portals of such a divine Museum! Judge if we were not right in the suggestion, that this Art was veritably a *providential* discovery, and destined to rank high among the instrumentalities, whereby the Infinite Disposer is preparing the way for the reintegration and exaltation of our hapless race. M. A. Root.

Phila. May 16, 1857.

From the Waterbury American.

DEATH OF J. M. L. SCOVILL, ESQ.

[As Mr. Scoville, whose obsequies are here recorded, was for many years connected with the Photographic Art as a manufacturer—we have no doubt this notice will be of interest to our readers.—Ed. P. & F. A. J.]

It is with feelings of sadness that we are called upon to record the death of James M. L. Scovill, Esq., one of the most prominent and estimable citizens of this town. He expired at his residence on Saturday evening between six and seven o'clock, of the heart disease, and some other stubborn internal affections which have for several years greatly affected the former even tenor of his health, at times confining him to his house for weeks together—but until his last attack, which occurred about four weeks since, his recuperating powers have rallied, and he had after a temporary confinement been able to appear again in the streets and perform his usual round of duties. It was the opinion, however, of those most familiar with his increasing infirmities, when he was taken down this last time, that notwithstanding his iron constitution, nature must inevitably yield in the struggle, a prediction that was too faithfully fulfilled.

Though this melancholy event has not fallen suddenly upon us, for the reasons above stated, yet it has cast a gloom over the busy aspects of our community, deep, heartfelt, mingled with those natural emotions which give place to the consummation of that inevitable decree that removes from our sight a prominent and long cherished object, whom his fellow citizens have been occustomed to look upon and venerate from their earliest recollection. Such was the subject of this notice, whose earthly remains were followed to the tomb three days since—the last of the noble galaxy of pioneers who laid the foundation of the manufacturing city of Waterbury—his early associates having gone before.

James Mitchell Lamson Scovill, was born in this town on the 4th day of September, 1789, and was consequently at the time of his decease in the 68th year of his age, bordering upon the average limit of three score and ten. He was the eldest son of the late James Scovill and Althea Lamson Scovill, and grandson of the Rev. James Scovill, who from 1759 to 1788 officiated in the Waterbury Episcopal Parish and adjoining localities, having been sent out as a Missionary by the "Society for the Promotion of Christian Knowledge," to whom the American Branch of the Church of England is so much indebted for its early progress.

The minority probation of Mr. Scovill possessed nothing particularly adventitious over others of his own age—and with the exception of a small share of academical instruction, he enjoyed no better educational opportunities than was afforded by the common schools of that period—which, contrasted with the present, would make but an indifferent comparison. Those who remember him in those, his early days, will bear witness to his native kindness of disposition, the manly traits of his character; an infusion of a certain magnanimity, which won for him the love of his associates that made him almost their idol—high-toned qualities that never forsook him under any circumstances, and which were an index of that honorable and useful career that has since associated his name with all that is good, upright, enterprising and practicable, not only in the community in which he lived, was born and died, but his influence has been as broadcast as his views were noble, unselfish and expanded.

We are aware that in referring to the past history of the deceased, we may reiterate many incidents known to the older residents of our town, now few in number, but to many now among us it may be gratifying to look back from the starting point, nearly half a century ago, when the now city of Waterbury numbered not over thirty houses, and when the town was one of the poorest in the State. It was at that time that some few individuals had made some attempts at manufacturing, though on a small scale—and Mr. Scovill, who had received a mercantile education in his father's store, had the perception to foresee that this branch of business must eventually rise to importance, and that the immense water power of Waterbury might be turned to great account.

Accordingly, soon after reaching his majority, about 1810 or '11, he associated himself with Frederick Leavenworth and David Hayden, and bought out Abel Porter & Co., who had established and carried on the gilt button manufacture on a contracted scale, in a small building standing on South Main street. The idea was conceived as an experimert, but being without the necessary skill, tools and other requisites, their business was little better than a failure.

On the accession of the new firm of "Leavenworth, Hayden & Scovill," new life was infused into the enterprise. The works were removed to an old mill where the immense works of the Scovill Manufacturing Co. now stand; such machinery as could be obtained at that time was procured, water power applied, their accommodations enlarged, and the business at once arose into one of importance, comparatively speaking, when contrasted with the improvements since introduced. Mr. Scovill was the master spirit of the concern, acting as the agent for the sales abroad, while his partners managed the business at home.

The establishment was continued under the above firm until the year 1827, when Mr. Scovill, in conjunction with his brother, William H. Scovill, bought out the old concern and commenced business under the name and firm of "J. M. L. & William H. Scovill." From that hour, though a passing cloud obscured their prospects by the burning of their factory, a tide of success poured in upon the brothers which is allotted to few—the honorable reward of a course of indomitable industry, perseverance and judicious management. Never were two men better calculated for each other—both were actuated by the highest impulses of integrity, and their qualifications, though different, were so happily blended, such was the confidence between them, that in all matters of business they were known only as one. Both at the time of their death were more or less identified with nearly every kindred establishment in the place—and one can hardly turn his eye without being reminded of their joint participation in the progress and adornment of their native city—the welfare of which formed one of the leading objects of their ambition.

Such are some of the outlines in the active history of the man whose death we are called upon to mourn—and upon reviewing the gradual steps by which he rose to the lofty eminence which he attained among his fellow men, we have a practical commentary of what can be achieved by a single individual who steadily pursues the well-trodden path of industry, guided by perseverance, integrity and prudence. With a well-balanced mind, without any pretensions to brilliancy, there was a massiveness in his intellect which enabled him to grapple with circumstances, to concentrate and apply the means of success to a remarkable degree. He would perhaps be classed by some as rather a slow thinker—but when he had made up his mind to do a thing, it was as good as accomplished. Though progressive, he was not speculative. He required to be convinced before he adopted a course of action, that done, no more was to be said. And as in his business character, so was it in his general intercourse in the ordinary duties of society. Never obtrusive, he was ever foremost in every enterprise that would promote the public good, lending not only his personal influence, but lavish with those means with which fortune had favored him. He took a lively interest in the politics of the day, yet had no aspirations for office, though elected at various times to represent his native town in both branches of the Legislature, rather at the intercession of his constituents than from his own choice. In his private relations he was the soul of honor, never forgetting a favor or neglecting a friend. As he lived so he died, the same Lamson Scovill, as fresh in his feeling and sympathies as distinguished him in his boyhood.

A few words upon his religious views and our melancholly task is done. Though born and educated in the Episcopal Church, and always a scrupulous attendant upon its ministrations, if we mistake not it is only about thirty years since he became a communicant. A visible change then came over his character, and his daily walk since that period has been that of a devoted and humble follower of the Cross. Considering himself as but the steward of his possessions, the Church has claimed no inconsiderable share of his attention, and has shared largely in his munificence. Within the last ten years he was united to an estimable lady, and inhabiting an elegant mansion, the evening of his days were passed in a happy domestic circle, where was dispensed an unostentatious hospitality, surrounded by his kindred and the friends he loved. Two sons and a daughter have been added to gladden his declining age—now fatherless. The closing scene was one of tranquility—of hope. Though favored with all the attractions that could render life desirable, he viewed the approach of the king of terrors with calmness and resignation to the Divine Will, in the fullness of the Christian faith, and in the hope of a blessed immortality, yielding up life without a struggle.

THE FUNERAL.

The Funeral Ceremonies took place on Tuesday afternoon, at one o'clock, at St. John's Church. The factories, stores and other places of business were generally closed, by mutual concurrence. At about half-past one, after prefactory service by Bishop Williams, the body was taken from the mansion of the deceased, and the procession was arranged in the following order:

The Stockholders of the Scovill Manuf'g. Co.
The employees of the same.
The Bishop and Clergy.
Pall Bearers. | THE BODY. | Pall Bearers.
Mourners.
Mayor, Aldermen and Common Council.
Citizens.

Notwithstanding the rain the Church was filled in every part, presenting a scene of sad solemnity befitting the melancholy occasion, as the choir broke the subdued silence by singing the impressive hymn of the "Dying Christian to his Soul" The Service was then read by Rev. T. R. Pynchon Scovill, Professor of Chemistry in Trinity College, assisted by Rev. Mr. Appleton. After the the singing of the 33d Psalm, the Bishop advanced to the railing of the altar, and in a brief but touching exordium alluded to the solemnity of the scene which had called the assemblage together, and apologizing for his inability to deliver a regular sermon for want of time for preparation, commenced an extemporaneous address, taking for the basis of his remarks two texts, one from the Old Testament, the other from the New. "Not slothful in business, fervent in spirit, serving the Lord"—"Do justly, love mercy, and walk humbly with thy God." In the course of his comments, which were most eloquently and feelingly expresed, he drew a parallel deduction between the words and the character of the deceased, which was recognized and admitted, so far as the imperfect obedience of man is susceptible. There were others points of general application equally impressive. The solemnites were concluded by singing the beautiful hymn, "I would not live alway."

In consequence of the increasing storm, that part of the procession on foot withdrew from the line, after the *cortege* re-formed on leaving the Church for Riverside Cemetry. A long line of carriages, however, conveyed quite a large concourse of people, who witnessed the deposit of the body in its last resting place.

Annexed we present the proceedings expressive of the sentiments entertained of the deceased by the respective bodies whose opinions they embody, and furnished us for publication in our columns in obedience to special directions.

At the meeting of the Common Council of the City of Waterbury, held at the Court Room on Monday evening the 18th inst, the following preamble and resolutions were unanimously adopted.

Whereas, this Board of Common Council have heard with feelings of regret the death of James M. L. Scovill, Esq., an eminent and highly valued citizen of this town, and an Ex-Alderman of this Board, and being desirous to add their tribute of respect to the memory of the deceased by public expression of their sentiments,—therefore.

Resolved. That while contemplating the death of Mr. Scovill, the citizens of Waterbury are called upon to mourn the loss of one of their most prominent men—one who for nearly half a century has held a conspicious position among those to whose enterprise the town is indebted for its prosperity—and one of two or three others (now no more) who originated the gilt button business, the *nucleus* from which Waterbury has been transformed from an obscure country village to one of the largest manufacturing cities in the State—and as such, no honors that this Board can confer, are adequate to express the appreciation in which the services of the deceased should be held by his townsmen.

Resolved, That while paying this passing tribute to the business enterprise of the deceased, we are not insensible to the other high qualities that adorned his character as a citizen, a man and a christian. In all these relations he was distinguished for his liberality—his public spirit, and a readiness to foster every object that had a tendency to increase the wealth of his native town—to add to its beauty or intelligence—and the diffusion of prosperity among its inhabitants. His earthly career is now closed—but we trust the influence of his example, his virtues, and the numerous monuments of his industry, will remain long after his body has mouldered in the dust.

Resolved, That we cordially sympathize with his bereaved family in this dark hour of their affliction, and commend them to Him who holds in his hands the destinies of life and death.

Resolved, That this Board recommend that the stores and other places of business in the city so far as practicable be closed between 1 and 3 o'clock, P. M. during the funeral; and that the members of the Common Council give their attendance in a body.

Resolved, That a copy of these proceedings signed by the Mayor and Clerk of the Board, be transmitted to the family of the deceased—and that they be published in the city papers.

J. W. Webster, Mayor.

N. J. Welton, Clerk,

At a special meeting of the Wardens and Vestry of the Parish of St. John's Church, held on Monday May 18th 1857, the following preamble and resolutions were adopted:

Whereas, It has pleased Almighty God in the manifestations of his Providence to remove from among us by death, our estimable and venerable fellow citizens James M. L. Scovill, Esq. a member of this Vestry—we his associates being deeply impressed with the great loss which this community and this Church have sustained in this sad bereavement, would on our own behalf and that of the congregation, as a tribute due his memory beg leave to express our sentiments on this melancholy occasion. Therefore.

Resolved, That in the death of Mr. Scovill, his fellow citizens and the Church of which he was a consistent and active member from his youth up, have sustained a loss of the greatest magnitude—one which for years to come will be felt in all the various relations of society, whether viewed in the light of a citizens, a a man of business, or christian—occupying as he did a prominent position before the community for nearly half a century, conspicuous for his enterprizing and public spirit, and whose ample means were only equalled by his public and private munificence.

Resolved, That however exalted the character of the deceased as a citizen and a man, capable of conducting great enterprises with success and instrumental in building up the community in which he lived, it is equally pleasing to contemplate him in the character of an active and devoted christian. Descended from an early Minister of this Parish, he has ever been an unwavering adherent to the faith of his Fathers—and the records of this Parish will show that during its darkest days, (now long past) the deceased stood foremost in the ranks of its friends and supporters, exercising in its behalf the weight of his personal influence and a munificent liberality of those means which through Providence had been placed at his disposal—nor was this all, as his liberal donations for the Church elsewhere demonstrate. Such was the man whom we are called upon to honor and whose death we now so deeply lament.

Resolved, That we feelingly sympathize with the bereaved family in this dark hour of affliction, which has thus taken from them the head of their household, and would commend them to Him who promises to be the Father of the widow and the orphan.

Voted, That a copy of the above proceedings be signed by the Chairman and Clerk, and transmitted to the family of the deceased. Also that they be placed upon the Records of the Vestry and published in the city papers.

S. M. Buckingham, *Chairman.*

S. W. Hall, *Clerk.*

At the meeting of the Manufacturers and other citizens of Waterbury, assembled at the rooms of the Brass Association, on Monday evening, May 18, 1857, for the purpose of giving form and public expression to their sentiments in view of the affliction which has fallen upon their circle in the removal by death of their late esteemed and much valued fellow citizen J. M. L. Scovill, Esq.

Aaron Benedict was called to the Chair, and Lyman W. Coe appointed Secretary. A Committee, consisting of Isreal Holmes, N. J. Buel and Nelson Hall were appointed to prepare resolutions, who reported as follows:

Whereas, It has pleased the Almighty Ruler of Heaven and Earth, whose high and just prerogative it is to bestow life and to recall it, to remove from this community our highly respected friend and associate, J. M. L. Scovill, Esq. Therefore,

Resolved, That this afflicting dispensation calls on us for a pause, not only that we may "mourn with those who mourn," and seize the opportunity to manifest our respect for, and testify to the eminent worth of our departed friend—but to listen to the voice of God, and to reflect that we too are mortal.

Resolved, That in his early connection as originator of those enterprises which laid the foundation of our present prosperity, his indomitable energy and perseverance and final triumph over all discouragements incidental to premier efforts, we recognize the hand of a wise founder, and eminently successful laborer for those interests which have built our city.

Resolved, That the noble generosity with which he long fostered every object of public utility and ornament—the large benevolence with which he has nursed every effort having for its object the good of his fellow citizens and the welfare of man—his life long, and to an eminent degree, his disinterested labors in the business of this community, claim for his memory an urn in every heart, while his example challenges adoption by the successful and prosperous.

Resolved, That while all are mourners, yet the blow has fallen with heaviest weight on that afflicted circle within his own dwelling—with that circle we would mingle our sympathies, commending them to the widow's God and the Father of the fatherless.

Resolved, That we close our several places of business during the solemnities of the funeral, and will in a body accompany the remains of our friend to his last resting place, and the house appointed for all the living.

Resolved, That a copy of these resolutions signed by the Chairman and Secretary be forwarded to the family of the deceased.

After some appropriate remarks by the Chairman, Nelson Hall, Philo Brown, Green Kendrick and Norton J. Buel, Esqs., the above resolutions were passed unanimously.

Aaron Benedict, *Chairman.*

Lyman W. Coe, *Secretary.*

At a regular communication of Harmony Lodge, No. 42, F. and A. M., held at the Lodge Room on Thursday evening, May 21st, A. L. 1857, the following Preamble and Resolutions were unanimously adopted:

Whereas, It has pleased the Great Architect of the universe to remove by death from among us our late esteemed Friend and Brother, J. M. L. Scovill, who, though by reason of bodily infirmities, has not of late been able to meet with us, was a living exemplification of those noble and truly christian principles, which are the very cement and foundation of our order. It is therefore meet, that we who were associated with him in the bonds of Masonic Brotherhood, should join in a tribute of respect to the memory of one whose example was eminently worthy of imitation by every member of this Lodge. Therefore

Resolved, That while we bow with reverential submission to the will of "Him who doeth all things well," we cannot withhold an expression of unfeigned sorrow, for the loss which this Lodge, as well as the community have sustained, in the death of our late Brother.

Resolved, That to the afflicted family of the deceased, we tender our heartfelt sympathy, in the death of a beloved husband, a tender and affectionate parent, and a kind and faithful friend.

Resolved, That as a mark of esteem for our late Brother, the Lodge and Jewels be draped in mourning for thirty days.

Resolved, That a copy of the above Resolutions be presented by the W. M. to the family of the deceased.

From the Liverpool Photographic Journal.

PHOTOGRAPHIC EFFECTS OF LIGHTNING.

At the meeting of the Meteorological Society on Tuesday evening, the 24th ultimo, a paper was read on a phenomenon which really seems so incredible that were it not for the very numerous and high authorities who have given authentic accounts of the several occurrences, we should hesitate to lay the following abstract, quoted from the *Athenæum*, before our readers:—"*On the Photographic Effects of Lightning,*" by Andrés Poey, Director of the Observatory at Havana. The first (though not the earliest) authentic mention of this singular phenomenon was made by Benjamin Franklin, in 1786, who frequently stated that about twenty years previous, a man, who was standing opposite a tree that had just been struck by a thunderbolt, had on his breast an exact representation of that tree. A similar case is mentioned by the *Journal of Commerce*, New York, on the 26th of August, 1853:—'A little girl was standing at a window, before which was a young maple tree; after a brilliant flash of lightning a complete image of the tree was found imprinted on her body. This is not the first instance of the kind. M. Raspail, in 1855, has also mentioned another instance;—He says, that a boy climed a tree for the purpose of robbing a bird's nest, the tree was struck, and the boy thrown upon the ground—on his breast the image of the tree, with the bird and nest on one of its branches, appeared very plainly. Sig. Orioli, a learned Italian, brought before the Scientific Congress, at Naples, the following four cases of impressions made by lightning:—In September, 1825, lightning struck the foremast of the brigantine St. Buon Servo, in the Bay of Arriero; a sailor sitting under the mast was struck dead, and on his back was found an impression of a horse-shoe similar, even in size, to one fixed at the masthead. On another occasion, a sailor, standing in a similar position, had on the left of his breast the impression of a number 44, with a dot between the two figures, being in all respects the same as a number 44 that was at the extremity of one of the masts. On the 9th of October 1836, a young man was found struck by lightning—he had on a girdle with some gold coins in it, these were imprinted on his skin in the same manner they were placed in the girdle, thus a series of circles with one point of contact were plainly visible. The fourth case happened in 1847. An Italian lady, of Lugano, was sitting near a window during a thunderstorm, and perceived the commotion, but felt no injury; but a flower which happened to be in the path, of the electric current was perfectly reproduced on her leg, and there it remained, permanently. Mr. Poey concluded this part of his paper by an instance mentioned by him in his Memoir on Lightning Storms in Cuba and the United States. On the 24th of July, 1852, a poplar tree, in a coffee plantation, being struck by lightning, on one of the large dry leaves was found an exact representation of some pine trees that lay at the distance of 339 mètres (367 yards 9 inches). As to the theoretical explanation of lightning impressions, Mr. Poey things that they are produced in the same manner as the electric images obtained by Moser, Riess, Karsten, Grove Fox Talbot, and others, either by statical or dynamical electricity of different intensity. The fact that impressions are made through garments is easily accounted for, when we remember that their rough texture does not prevent the lightning passing through them with the impression it has received; to corroborate this view, Mr. Poey mentioned an instance of lightning falling down a chimney and passing into a trunk, in which was found an inch depth of soot, which must have passed through the wood itself."

ART MATTERS IN PARIS.

One of the excitements of the week was the sale of M. Patereau's gallery of old paintings. In this age of railroad stock and grand dividends, M. Patereau was an enigma. A man who could allow two or three hundred thousand dollars to sleep quietly in a saloon in the shape of old paintings, was in danger of being interdicted by his friends the use of his own property on suspicion of insanity. Happily perhaps for M. Patereau, he died before his friends knew the extent of his costly admiration for this style of investment. In 1850, M. Berryer cried on the tribune of the Legislative Assembly, "Take care, gentlemen of the majority! the great social positions are disappearing." He meant to say that a prince, carrying an old historical name, ought not to be assimilated to other citizens. M. Berryer was talking to the Republicans. His caution applies to the present French society. Nothing in fact could better translate the words of the oligarchic orator than this sale of old paintings. Under the hammer of the auctioneer, that indomitable symbol of modern equality, you might have seen thirty of the leading men of French society, including the representative of the Chief of State, disputing for the treasures, the idols, the worship of a single man. This great collection, which had cost a life of labor, was about to be scattered, dispersed—the social position which M. Patereau had created, was about to disappear.

The collection embraced Teniers, Rembrandt, Ruben, Hobbema, Wouvermans, Brauwer, Ostade, Wynants, Berghem, Albert Cuyp, Ruysdael, Karel Dujardin, and a hundred others. The principal purchasers were, the Emperor, the Princess Mathilde, the Louvre, Count Nieuerkerke, M. Fould, M. Rothschild, the Marquis of Hertford, the Museums of Brussels and Berlin, and the brothers Pereire. With such bidders as these you may imagine that competition was a dangerous affair for a light purse. The Windmills of Hobbema, strongly disputed by Count Nieuerkerke, the Marquis of Hertford, Russia and Prussia, was finally adjudged to the Museum of Berlin, at $19,200. The Count Nieuerkerke made several purchases for the Emperor, among the number a Murillo at $9,000. He also bought for the Louvre a little landscape of Wynants at $860; a landscape of Wouvermans at $6,000; the Repose of the Cavaliers, by the same master, considered his *chef d'œuvre*, at $10,020; and the Sleeping Infant Jesus, of Murillo, at $8,300; M. Fould paid for a Child's Head, by Greuze, $2,180; for a landscape of Teniers, $400, another of Berschem, $1,000; a Love Messenger, a little bijou, by Jean Steen, $440; for an Interior, by Teniers, $860; Lord Hertford bought two of the finest pictures of the sale; the Dutch Beer-house, by Ostende, at $10,300, and the Marine View of Cuyd, at $5,200; the Marquis took, also, the Repose of the Harvesters, by Gonzales Coques, at $9,200; and a Calm Sea, by Vandervelde, at $2,000. The first twenty-six pictures brought the sum of $90,000! (The above sums, in francs, are divided by 5).

When Baron Rothschild appeared in the auction-room of the Rue Drouot, the crowd separated to allow him to pass. A brother millionaire, pointing to a canvas of Karel Dujardin, and another of Paul Potter, said to M. Rothschild, "Baron, there are rags that are worth more than bank bills." "That's not my opinion," replied Rothschild.

Mademoiselle Figeac, a young and handsome actress of the Comédie Française, appeared suddenly in the midst of the gilded crowd. She shone like a rose amid dog-fennel. Everybody's eye-glass was upon her; her large eyes, on the contrary, were fixed on the two *chefs d'œuvre* of Greuze, *La Psyche* and *La Tete de l'Enfant*. But, alas! when the costs of sale and the tax were added to the sum bid, it was a figure of 45,000 francs, and the prettiest *comedienne* in the world has not always that sum in her purse of precious stones. Mlle. Figeac regarded, admired, and sighed. The days of chivalry are passing away. Among all these men who stir about as many treasures as did the King Attalus, there was not one whom the fine eyes and desolate look of the handsome actress melted. The fact is, we are far from the time when a Marshal of France sent to La Grimard, hid under the crust of a *pate d'Amiens*, twenty-five thousand francs of precious stones.

This sale assumed at times the physiognomy of a regular battle. The anglo-French alliance was more than once fairly ruptured. The two ancient rivals fought a public duel with golden Napoleons for weapons. It was not the least curious feature of the sale to see the Count Nieuerkerke lance his metallic phrases at the auctioneer. "One thousand francs! Two thousand francs! Four thousand francs!" But then the Count was bidding for the Emperor and the Museum of the Louvre. "No matter about bread!" as August Vacquerie said, ironically, in the revolution of 1848; "but museums! museums museums! We must have museums!" On his side the rich Lord Hertford set into operation a monetary artillery not less sonorous.

The paintings of the great artist Paul Delaroche, lately deceased, which were wanting at the Great Exhibition of 1855, have been reunited for a charitable object, and are now on exhibition at the Palace of the Fine Arts. An enormous number of visitors have rushed to see these works, for the most part unknown to the public, except by the engravings, which conveyed only enough of their beauties to excite the curiosity to see the originals. Paul Delaroche refused for a long time before his death to exhibit his works. When asked the reason one day by his colleague of the Institute, M. Halevy, he replied: "I have in my secretary perhaps fifty letters from the most prominent men in Europe, nearly all running thus: 'Sir, I desire to possess a picture from your pencil. You will choose your own subject, make it the size you please, for the price you please, and as soon as you please. But the sooner the more agreeable.' Having thus enough of work for more than a century beyond the duration of my ordinary life, why should I expose myself to criticisms, to contestations, to depreciation? I have everything that art can procure to one who has had the happiness to succeed, riches, renown, honors, and especially tranquillity. Why should I risk compromising all that in delivering up my words to be criticised by the journals? It would be folly, and that is the reason I do not expose."

What Delaroche refused to do living his friends are now doing for him dead. His works have been gathered from their happy possessors from every part of Europe, and there are some even that were found in Moscow. The Committee who have this work in hand, have been obliged to estimate the value of each picture, to guarantee the proprietor against its loss, and to ensure it. The value of the whole collection, thus estimated, is six millions of francs! The *chef d'œuvre* of the collection is the Death of the Duke of Guise.

From the Liverpool Photographic Journal.

PHOTOGRAPHIC SOCIETY OF SCOTLAND.

The following is an abstract of a very interesting paper

"ON THE APPLICATION OF URANIUM AND OTHER MATTERS TO PHOTOGRAPHY;"

which was read by Mr. Burnett at the last meeting of this society.

"The first class of these experiments is founded on the susceptibility to actinic influence of a paper prepared with the ferridcyanide of potassium, commonly called red prussiate of potash (the process so far being identical with one of the forms of the old cyanotype), and the subsequent action of a metallic salt affecting differently the changed and the unchanged portions of the ferridcyanide.

"Experiment 1st.—A paper prepared with red prussiate being washed, after exposure, with a solution of nitrate of silver, gave a brown, yellow, or red picture, on a bluish ground—of no value.

"Experiment 2nd.—The paper prepared with the red prussiate, being, after exposure, washed with or floated on a solution of the nitrate or chloride of cobalt, will give a purple or brown purple impression on a greyish or bluish ground, the colors varying within certain limits according to the strength of solution and other circumstances, and the pigments in this case being ferridcyanide of cobalt, Co Cy, Fe 2, Cy 3; and the ground probably the Co 2, Fe Cy 3, mixed with varying proportions of a prussian blue, according to the stage at which its decomposition by the cobalt solution has been arrested. This, and similar processes producing colored impressions, though no step towards the much aspired after color printing, understood as the getting of each ray of the spectrum to leave on the paper an impression which will reflect itself and no other, will yet suggest the idea of a certain sort of colored photography. Not to allude to the possibility of adding the complementary shades by hand or otherwise, and of producing more than one color by a combination or succession of differently acting chemicals on the paper, it is obvious that, in the case of one-colored objects, supposing us to have at our command a variety of processes yielding as many different colors, we may select our process according to the color we wish to produce.

"To return to our cobalt process, which suggested this digression, it might, for instance, should it turn out permanent in its results, give us the means of re-producing the floridæ, or red sea-weeds, with such an approach to their natural complexion as might be valuable to the student of marine botany.

"By steeping the cobalt photographs in a solution of carbonate of ammonia, we may modify to some extent the color, giving the purple a more rosy hue, prolonged exposure to brilliant sunshine having, however, a tendency to restore the purple. The ground also undergoes some change. By using a paper prepared with the ferrocyanide, or yellow prussiate, mixed with an acid, instead of the red salt, we get very similar results. I have got photographic indications with the ferrocyanides along with some of the other metallic salts. I have not, however, with the exception of uranium, yet had any presentable results.

"The next class of processes are dependent on the sensitiveness to light of the salts of uranic oxide or sesqui-oxide of uranium, U 2 O 3.

"In the first process, the paper being charged with the uranic salt, and exposed to the solar influence under the negative to be copied, is washed with a solution of the ferridcyanide or red prussiate of potash. The 'Harvest Scene' in the Exhibition, being from an albumen negative, very obligingly lent me by Mr. Ross, of Messrs. Ross and Thompson, the well-known Edinburgh photographers, is an example, the salt of the sesqui-oxide of uranium being in this case the hydrofluate, and the time of exposure from the strength of the albumen negative, fully an hour of good sunshine. I have used for the solution of the uranic oxide for this process a variety of acids with very similar results; the sensitiveness of the prepared paper to light, however, varying much. For instance, a collodion negative with the hydrofluate paper, produced a very good print in half an hour of unsteady sun, while with a paper prepared with the tartaric acid solution of the oxide, it gave an equally good impression in less than five minutes of the same intermitting sunshine, indicating thus a difference of sensitiveness of 6 to 1 in favor of the tartrate. The rationale of this process is the reduction of the sesqui-oxide of uranium U 2 O 3, on those parts of the paper exposed to the solar influence, to a lower state of oxidation, the protoxide U O, the salts of which have the property of forming with the soluble alkaline ferridcyanides a rich chocolate brown precipitate, while the salts of the sesqui-oxide are destitute of this reaction. Hence the brown deposit on the parts of the picture on which the sun has been allowed to act when the developing solution is applied, and the absence of any such appearance on those parts which have been protected from his influence. As to the manipulatory details of this process, the paper (Canson's is what I have used), should be floated on the solution of nitrate, tartrate, or other salt used, in a dark room and hung up there to dry, and then preserved from light in a portfolio. It carefully secluded from light it appears to keep well. After exposure for the proper time under the negative, there is in some cases scarcely any visible impression, while in other cases, particularly when using the tartaric acid solution, I have found the impression very distinguishable of a brownish or blackish shade, although still quite faint.

"The development is best conducted by floating it, anything like rubbing the picture being very objectionable. I use a quite strong solution of the red prussiate, but if kept from daylight and any sediment occasionally poured off, and more of the red prussiate added if it becomes weakened, it will serve for a good many developments.

"When the picture has fully come out, which is generally in from three to ten minutes at the very most, it is removed from the developing bath, placed in cold water, and washed very gently for a few minutes, the water being frequently changed till it ceases to acquire a yellow tinge from the dissolved red prussiate. The picture is then drained from the water, pressed between folds of blotting paper, dried in the dark, and the process is complete.

"During every stage of this process, from the first preparation of the paper till the completion of the picture, except when under the negative, in the pressure-frame, it should be kept carefully secluded from light, for, though not so delicately susceptible of injury from a straggling ray as the calotype paper, or as this same paper when employed with some of the developers I shall afterwards describe, it will be soon found that neglect of such precaution, at any stage, will be likely to affect unfavorably the final result. It is well also to mention, that in this process not only do we cease to gain, but the print may be seriously damaged by too long exposure in the pressure-frame, the parts which ought to have been the darkest assuming, in this case (as they dry after the development), a sort of ochrey or clayey appearance, quite destructive of all beauty. This, the only difficulty attending the process, is not however very difficult to avoid, at all events after one or two trials, which may be made by small slips of prepared paper, and the results of this process, when well conducted, are for many purposes (copies of sculpture for instance), of a very pleasing kind. I may state, as one recommendation of this process, that any brown stains left by it on the fingers or elsewhere are at once removable by a little weak ammonia, or soap and water.

"There remains but one class of uranic photographs to be described, namely, that obtained when we develop with a salt of silver or gold (or platinum ?). This class may be made to print much more rapidly than our ordinary silver printing process, approaching sometimes more nearly to the calotype development in this respect. We get the *minutest details* with great fidelity, and the picture is effectually fixed by simple fresh hyposulphite solution, with a good color in many cases (at all events as may be seen in the exhibition), or by ammonia, which will be considered an advantage by those who hold the hyposulphite an enemy to durability. Different shades of color are produced according to different solvent acids and different details. I have got a good black, perfectly like that of an engraving, by the nitrate of uranic oxide, developed by ammonio-nitrate of silver (or plain nitrate), and fixed by plain hyposulphite without any coloring bath. One in the Exhibition was so manipulated in May last, and still shows no signs of decay. I have also obtained prints of blackish grey, or red grey, changing into pure grey, by an exposure to an hour or two of sunshine, by preparing and developing in the same way, and fixing by a weak ammonial solution.

"I have experimented with uranium development on a considerable variety of the uranic oxide salts. I name the following: nitrate, hydrochlorate, oxalate, formiate, benzoate, hydrofluate, succinate, tartrate, ammonio-acetate, and citrate, which is, in some respects, a very convenient salt. The uranic oxide dissolving in the citric acid solution with remarkable ease, and the silver salts which result from the mutual decomposition being insoluble, may, in some respects, be a convenience. The nitrate and the tartrate, among others, give very pleasing results. On paper prepared with the uranic nitrate solution, (the strength being 40 to 50 grains to the ounce of water), I obtained a very distinct copy from a collodion negative, developed by nitrate of silver, after fifteen seconds' exposure to sunshine, or considerably better filled up by ten seconds of exposure, by adding to the nitrate of silver developer a small quantity of the proto-sulphate of iron solution with acetic acid mixed. The silver, with proto-sulphate, or other proto-salt of iron solution, applied to a longer exposed paper gives a very intense deeply-printed black. Impressions of ferns have been developed on the uranic tartrate paper, after exposure to gas-light, not only by silver solutions, but by the ferridcyanide, and as this latter developer requires the action to have gone on much farther before any very decided symptoms of action are perceived, this tartrate paper might perhaps prove sensitive enough to be available for the camera. We saw already that the tartrate was much more sensitive to light than the nitrate, and I suspect that some of the other salts possess yet greater sensitiveness. I have not yet got the bromide and iodide brought fully to proof, but I intend giving them a trial with collodion and albumen. It would be interesting to observe whether the action of light on the different uranic salts bears any relation to that on the salts of silver, or what is much more probable, of ferric oxide with the corresponding acids; but the most interesting relations remaining to be examined is perhaps the action of the differently colored rays of the spectrum on the uranium salts. I have not yet been able, from want of convenience and apparatus, to come to any very decided conclusion as to these actions, but it is very important that a minute investigation should be made of the relative susceptibilities of the different portions of the spectrum, of all substances which give any promise of being sufficiently sensitive for use in the camera. Every one is aware that the great difficulty in representing foliage in landscapes is owing to the unequal actions of the higher and lower portions of the spectrum on the silver salts, and it is only by the systematic prosecution of such enquiries as we allude to, that we may hope to hit upon some substance more equally acted upon by the differently colored rays, or acted on sufficiently by the green rays, to enable us to work with them by themselves.

ORIENTAL PAINTING.

In this process the design was traced on thick transparent paper as many times as there were colors to be applied. The space to be occupied by each color was accurately cut out, and being laid upon the article to be tinted, the color was scrubbed on with a hard round brush, cut flat at the end. The tracing being removed, that for the next color was laid in its place, and the new color applied as before. The process was repeated until all the colors were filled in, the delicate markings and finishing touches were then added with a hair pencil. Work so mechanical as this had of course nothing of an artistic character; it was popular for a time and was then almost forgotton.

CHURCH'S NIAGARA.

The only proof that a thing can be done is the doing it, and every great work which has ever been accomplished in this world was an impossibility until it was achieved. Doubtless the brown-faced friends of Cheops pooh-poohed his Pyramid till its stately apex rose sharp and clear before them against the deep blue of the Egyptian sky. The Counsellors of Alexander thought him but a Macedonian madman till the daughters of Darius knelt for mercy at his feet. The sage old soldiers of Hannibal shook their gray beards, we may be sure, in solemn horror, at the foot of the Helvetic Alps, and never believed in their leader again till they ranged their worn and weary legions in order of battle on the plains of Piedmont. St. Peters dome was but a poet's dream Michael Angelo had hung the Phantheon plainly in the air, and the steamship was an enthusiast's foolish fancy till the guns of our own Battery echoed back the greetings of the *Sirius* and the *Great Western* in the Bay. Time and again have the critics and the public stricken the pencil and the brush from the aspiring artist's hand by the sweeping assertion that the thing he most wished to paint could never be painted by man—and time and again has the artist taken up his tools made all their skepticism ridiculous.

What proposition has been more universally accepted as an axiom in American landscape art than this—that Niagara could not be reproduced on the canvas? Everybody has echoed the remark—every body has believed it—no-body could question, because nobody had disproved it. And now there comes a quiet artist forward, who calmly puts his work down before gazing Broadway, and begs leave to differ from the critics and the public—and in the twinkling of an eye wins all the world over to his side! People go and look at Mr. Church's *Niagara*, and come away only wondering that anybody who tried to do it ever failed to paint the Cataract. It seems the simplest thing in the world, for it has been done simply—with the simplicity of power, and the wonderful, convincing truth of simplicity.

You pass from the bustle of the street into that small back room of the Messrs. Williams & Stevens, which all lovers of art know so well, and in which they have passed at one time or another so many pleasant hours—and behold! there is the marvel of the Western World before you! The broadening river sweeps curving to the plunge—the beryl-green of the central watery masses charms their else awful might into delicious beauty—the vaporous white veils of mingling spray and mist float lightly and tenderly up, smitten through and through with the glory of the diffusive daylight and the splendor of the glittering rainbow—far away, far as the eye can follow the dreaming fancy, the distant landscape glows and mellows through every hue of purple, gold and amethyst—and overhead the sky bends, warm, and light, and soft—a heaven worthy of the scene.

To write of the picture is like writing of the Falls themselves. You think of it, and your pen hangs idly in your hand, as your imagination brings back, to you the grandeur and the grace you gazed upon. The painting of such a picture marks an era in the art of our conntry, and it is not fit that it should go from among us without some worthy recognition of its real greatness and importance. To criticize it in detail is not our present purpose; we reserve that pleasant duty for another occasion and a more suitable opportunity. We have now only to point to its existence as a most brilliant illustration of the reward which always awaits the trust, the courage and the enterprise of genius.

We cannot believe that the Art of Painting will be left to linger on as it has heretofore been compelled to do, in a country which has produced one such picture, and has given to that picture, such a welcome as Mr. Church's Niagara has received from the public, if not from the press. We do not doubt that the conviction of the greatness of the painter's art which must be impressed upon the mind of the most careless and the most ignorant spectator, by such a triumph of form and color as this picture is, will send many a man and woman in a more receptive temper to the exhibition, which the National Academy has once more opened to the world. While all England is thronging to Manchester, there to do honor to the mighty masters of the

Past, and of many a foreign land, let not our citizens show themselves indifferent to the gallant and aspiring efforts of native genius in New York. The single example of Mr. Church's splendid achievement is sufficient to show what may be reasonably expected of Painting in America, if the public will but manifest such an interest in the ambition of its votaries as is due to the greatness of the Art itself, and to the shining promise of its actual estate among us.

From the London Art Journal.

DAVID COX AND HIS SKETCHING-GROUND.

If any painter of our school merits the distinction of "purely English," it is the subject of this notice, for the main facts of which we are indebted to the columns of the *Brighton Gazette*; and these particulars we do not apologise for extracting, as they convey reliable information "anent" the father of a large and yet increasing family—we mean the Water-color School. Neither the volcanic crests of the Rhine, nor the wine-bearing shores of the Moselle, have been able to charm the constancy of David Cox from his first love—Bettwys-y-Coed. There is but little of "*solidarite*" (what do not our neighbours owe the Chaussée d'Antin for this valuable word?) in the characteristics of those painters whose excursive affections comprehend everything between the Augustan Forum and the furthest Thule. David Cox set up his altar and worshiped Nature in the same fields as did Girtin, Robson, Turner, Copley Fielding, and all those who "adorned the profession" in the earlier part of our progressive century. We have seen Robson's father turn his back upon his son with these encouraging words: "Sir, I have lived by the wine trade to be an old man; but you will never live beyond your youth by your water-color trade." The old man was right; but he did not wish to be so. And Cox remains the only link between the present and that time, now long past, the deepening twilight of which is gilded, also, by the shining names of Dewint, Prout, and others, who live now only in their works.

"Bettwys-y-Coed, a name for many years familiar to all visitors of the London exhibitions, from the numberless paintings which annually appear on their walls, representing scenes and incidents in that now much frequented and admired place, was, at the commencement of the present century, scarcely known beyond the district in which it is situated, or distinguished in any way from other Welsh towns and villages with equally-unpronounceable names. Fifty-five years ago, this then obscure and inaccessible village was visited by a young man, then as unknown as the place which became his temporary residence, who after essaying various trades and callings, had resolved to devote himself to the art of painting. That young man was the now celebrated David Cox, who will ever be remembered as one of the most original and distinguished of England's landscape-painters. With a rare constancy, the more remarkable from the ever-changings pursuits of his youth, he has continued to be a frequent visitor to the scenes of his earlier studies. It is said that for thirty-five years he has never missed a single season. The present has been no exception to this long established habit. Not long since the well-known, sturdy, fresh-colored, and hearty-looking old man, now verging on fourscore years, was to be seen imbibing fresh inspiration from the perpetually-changing atmospheric effects in that mountainous district, with all the ardor and enthusiasm of youth. Many are the anecdotes told in the village of the kind-hearted and simple-minded artist who, unspoiled by success and intercourse with the world, has still preserved that most attractive and rarest of all gifts of manner—a genuine and unaffected simplicity. Many are the memorials which are proudly exhibited of his frequent and long sojourns at Bettwys. The landlord of 'The Oak' boasts of a sign-board painted by his yearly visitor. A paragraph appeared not long since in some of the papers about this sign. A Manchester manufacturer, so the tale went, had, during a recent visit, tempted the landlord with the offer of 100 guineas; the offer was accepted, and the manufacturer bore off the sign in triumph. The offer may have been made, nothing more likely, considering the enormous sums which the great Art-patrons of the present day, the merchants and manufactures of England, offer for any really-meritorious production; but if so, it was rejected. The veritable sign, as painted by the great artist, still remains in its original position; and long may it be before this pleasing reminiscence of a genuine Englishman and English painter be removed from the place for which he destined it! Sign-painting has been the occasional amusement of many artists, and sometimes it has been adopted by the less provident followers of Art as a convenient mode of settling an account with the landlord. Moreland is known to have had recourse to this expedient on more than one occasion. Wales can boast of another sign from the pencil of a distinguished landscape-painter. For the little inn of the hilly Ruthin, Richard Wilson painted the well-known 'Loggerheads,' with the inscription, 'We three Loggerhead be.' The 'Oak' at Bettwys has other memorials of the artist's skill, beside the signboard. The walls of the parlor are ornamented with specimens of his art, and that in a style very different from what he exhibits at the Water-color Gallery. A figure, life-size, having all the effect of fresco, but probably painted in water color on the plaster, is a copy from memory of the fresco by Redgrave, exhibited at Westminister Hall, of Cathrine Douglas securing the door with her bare arm. English artists do not, like their brethren on the Continent, form a class apart, and are not like them, gregarious in their habits. English artists have no such places of rural rendezvous as the French meet with in the forest of Fontainebleau, at Barbioon. Perhaps the nearest approach to these continental assemblages which Great Britain affords is at Bettwys, where 'The Oak' occasionally shelters at one time ten or a dozen artists. This distinction is entirely owing to David Cox. It is his pencil that first made the little village known to the world of Art; it is the fame he has acquired which has induced others to visit this district; and for the many solid advantages which result from this succession of visitors, the inhabitants are indebted to the friendly, warm-hearted artist who enjoys the happiness of doing good to others. What Walter Scott did for the Highlands, and Wordsworth, for the Lake district, David Cox has done for Wales—attracting there not only the younger aspirants for artistic honors, but the admirers of wild, uncultivated, and picturesque scenery, and even the ordinary tourist, who hurries from place to place in search of that mental excitement he is incapable of feeling.

"To those who can appreciate such scenes, no more interesting excursion can be conceived than a visit to Bettwys. A journey of sixteen miles from Conway will bring the pilgrim to the little village, situated in a beautiful valley. On either side rise lofty hills, from which huge masses of rock stand out in bold relief against the sky,—some perfectly bare, others partially concealed by heath and fern, which grow around and upon them with the utmost luxuriance. Through the bottom of the valley rushes and roars the Llugwy, fretting and foaming over its rocky bed, until, with the Lleder, it falls into the Conway hard by. The ash and the beech spring from the fissures of the rocky banks and droop into the stream, whilst here and there bright patches of meadow and corn-land vary the surface of the lowlands.

"All around the country may be said to be Cox's land. Every wide expanse or lofty mountain, every nook and corner, every object which meets the eye, every incident and every effect which can occur in such a district has furnished a subject for his prolific pencil. The wild uplands and craggy steeps, flooded in sunshine or veiled in mists; the brawling stream and flashing river, where the water comes dancing from the hills, leaping from rock to rock with a great rush and a great cry, as only mountain torrents can, seaming their sides with threads of silvery hue and brightness. Peat-gatherers and fern-gatherers, spashing through boggy fens, or winding their weary way to strange out-of-the way places on the hill-side or mountain-top, where not unfrequently the poor but hospitable owner will startle the visitor by producing a sketch or other memorial of some artist, perhaps now of established and wide-spread reputation, or long since removed from the scene of his triumphs and his mortifications, who years gone by had found shelter beneath, the lowly storm-buffeted roof. The little church, too, how many subjects has that suggested, with its morning, its mid-day, and its evening effects—its christenings, its weddings, and its funerals, an epitome of human existence. The picture of the Welsh Funeral at Bettwys, exhibited a few years since, is one of David Cox's most impressive works; the tone of color so perfectly in keeping with the sad scene—deep, full, and solemn. Few incidents are more touching than such a funeral scene in the dark gloom of the mountain-wild, so calculated to excite reflection upon the vastness of nature, and the littleness of men. Moel Siabod, towering to the clouds, looks down, as it has looked down, generation after generation, on the mournful throng passing slowly beneath its shadow. A Welsh funeral is a great gathering,—all the neighbors of the deceased attend the body to the grave, or, if prevented, some representative of the household attends, so that even the poorest has many followers; but, for the wealthy or the highly respected, the train is exceedingly numerous. This custom, still religiously observed, is probably derived from former habits, when the people, instead of being widely scattered, as now, over the face of the country, were collected in and around the castle of their chief, forming as it were one family. Those who are familiar only with the recent drawings of David Cox, would scarcely recognise some of his earlier productions as the works of the same artist. In his younger days he bestowed far more care and finish than we observe in his recent drawings; many of his earlier ones being as remarkable for purity and delicacy of color as those of his later years for breadth and vigor of execution. The laws of Pre-Raphaelite minuteness might pronounce these last to be mere blots of color, from their entire absence of datail; but however slight and apparently careless, they evince the hand of a master, and are often far more suggestive of the real scene or effect, than the most labored imitation of the minute and accurate copyist of nature's details. The style may be characterised as a happy power of seizing upon the leading point of his subjects, and rendering them in broad and affective masses of light and shade—truthful and sober in color, and simple in execution as his own rare character. Probaby all strongly individual minds illustrate themselves in their works, and traces of the man may be found both in the choice of subject, and mode of execution. The artless nature of David Cox is seen in every subject from his hand, and impressed by every touch of his pencil. This working out of a deep-seated feeling is essential to originality, and a part of the constitution of every great painter; without it he becomes a mere imitator of other men's works, seeing through the eyes of some favorite idol of the day, instead of re-producing his own sensations direct and fresh from nature. Individuality is the very soul of painting, and its highest worth. It rendered Turner the greatest of landscape-painters, originating with him new thoughts and modes of expression never before seen in the world of Art. As a painter of light, with all its tender and delicate gradations through space he surpassed all men. The pictures of Cox are valued and admired for the same reasons that induce us to appreciate the works of Turner—their perfect originality—because they are so unlike the works of any one else. Like Turner, he gives his own free view of nature, unbiassed by the thoughts of others, faithful to his own perception, distinct and original."

Fifty-five years ago! and still so constant to Bettwys. Most rare ingenuity, to extract so much good out of a thing so small! In connection with this there is but one wish to express—and we may do that publicly which it would scarcely be graceful for a man's friends to propose to himself—that is, whenever it shall please God to take to himself the spirit of the man of whom we write and read with so much pleasure that a monument of him be placed in the little church of Bettwys. The story of his life will not be complete without this consummation. And now for a time farewell, David Cox; but a few weeks and we shall see thee, we earnestly hope, fresh and vigorous on the walls of the Old Water Color Society and may we expect thy coming for many a future year!

Parallel Rays are such as proceed equally distant from each other through their whole course.

From the Jour. of the Phot. Soc.

DUBLIN PHOTOGRAPHIC SOCIETY.

[Meeting of April 1, 1857.]

Capt. Henry, President, in the Chair.

The President addressed the Meeting, thanking the Society for the honor done to him in electing him President for the year; and, after a brief allusion to the establishment and progress of the Society, stated that it would continue to have his best exertions for its advancement.

Mr. T. Shaw Smith read a paper detailing his modifications of the calotype process and illustrating the same by developing a negative (taken that day) in about five minutes.

Mr. Brownrigg exhibited a very inexpensive camera and developing box combined;

Dr. Lover, a lamp and condenser for photographing microscopic objects at night;

Mr. Hamilton, his application of sliding steadying rods to the ball-and-socket camera-stand; and

Mr. Grubb, Hon. Sec., his improvements in the supports of large cameras.

Abstract of Mr. T. Shaw Smith's *paper on the Calotype or Wet-paper process.*

The modifications of the wet-paper process by which I have been enabled with great certainty to obtain negatives of excellent quality in Eastern climes, and during temperatures ranging between 70° and 90° in the shade, are three in number,—the apparatus required in each case being of the simplest description, and 1 oz. of distilled water serving to sensitize and develope four pictures of 9×7 inches.

For the lowest temperatures I used Whatman's paper, iodized as usual, and excited with aceto-nitrate, 20 grains of nitrate, and 1½ drachm acetic acid per ounce;—time of exposure about 5 minutes.

For temperatures from 70° to 85° I use Canson's paper cut to the size required, leaving two short slips at two opposite angles to handle by, and iodized as follows:—

Two lumps of Russian isinglass were dissolved in 17 ozs. distilled water, filtered through muslin, and 13 grs. of iodide of potassium added to each ounce, and 1 gr. solid iodine. The papers were immersed in this, using the ordinary precautions against air-bubbles, &c.,—the fluid being kept warm by an outer dish of hot water. The papers on removal were drained and hung up to dry by one corner. The exciting bath for these was a 35-grain one.

When the temperature rose above 85°, these papers would not keep during the day; they became spotted. This difficulty I overcame as follows:—An iodizing bath was prepared similar to the last-mentioned, only leaving out the solid iodine and substituting as follows:—

Four drops of "bromure d'iode" were added to the bath, and eight papers, of say 9×7, were then iodized; then, if more papers were to be iodized, 4 more drops of the last solution were added, and so on, adding 4 drops of the "bromure d'iode" for each eight papers iodized.

The effect of this addition of the "bromure," while it nearly doubled the required time of exposure in the camera, was, to cause the papers so prepared to keep well during the whole day under the highest temperatures, the papers being excited in the morning and developed the same evening. The exciting bath was a 35-grain one.

My method of manipulating in exciting and developing is as follows:—

The glasses of the châssis being removable, on one of these, roughly levelled, is filtered a sufficient quantity of the exciting fluid, which is spread with a slip of paper; on this is laid the sheet to be sensitized; as soon as the purple tinge has disappeared, the surplus fluid is drained back into the bottle and a sheet of common paper, wetted with distilled water, laid over; the two sheets are then pressed together and the surplus liquid removed by drawing over them the edge of a glass ruler.

A second iodized sheet being similarly prepared on the second glass of the châssis, and the whole put together, the papers retain their moistness, sensitiveness, and keeping qualities during the entire day. The time of exposure for the papers prepared with the "bromure d'iode" I found to be about seven minutes in sunlight, using ¾-inch aperture with 14-inch focus.

In developing, I partly raise the negative by one of the elongated corners, pour on the plate, near the centre, a saturated solution of gallic acid, and distribute it by raising the corners of the negative in succcession. The development ususlly occupies about five minutes.

The only novel thing in these processes is perhaps the use of the "bromure d'iode" in combination with iodide of potassium, which appears to have the valuable property of rendering the sensitive papers available during the whole of the hottest day.

POTICHOMANIE.

Solomon's proverb, "there is nothing new under the sun," and, "the thing that has been shall be again," holds good in Decorative Art as in other things. The new accomplishment, now so popular, called *Potichomanie*, is but a resuscitation and combination of some varieties of fancy-work which were fashionable about thirty years ago. The earliest form of this decoration consisted in applying to the inner surfaces of colorless hyacinth glasses, daubs of water-color paint of different colors. These daubs suffered to run one into another at the edges, as in the process called "marbling." When dry a coat or two of thin plaster of Paris mixed with water was applied to the inside of the glass. This set in a few minutes and secured the colors from injury by water, and also gave them body or solidity. The glasses were then filled with water, which had no action on the plaster of Paris, and the flower-roots were placed in them in the usual manner. A still nearer approach to Potichomanie is to be found in some country villages, where window-blinds are formed by gumming to the glass flowers and birds cut out of chintz furniture or paper-hangings, and then covering the inner surface with oil-paint. Five or six years after the vari-colored hyacinth glasses had been introduced, it became the fashion to paint with oil-colors the outer surfaces of large raisin-jars and others of suitable form. When the paint was dry, birds and flowers, cut out of chintz furniture or paper, were fastened to the surface of the jars, which were afterwards varnished. They were used for dried rose-leaves, lavender, and other scents. Many of these jars are still in existence.

Potichomanie is now so fashionable that the shop windows are full of specimens of the art to the exclusion of other fancy-work, and one cannot walk along the streets without meeting shop-boys carrying glass vases, and other materials for it in their hands, so that the fact almost verifies the name *Poticho-mania*

It may, therefore, appear superfluous to describe it, yet as some of the readers of this Journal may not have been initiated into the mysteries of the Art, I shall briefly explain the process. Figures, birds, flowers, &c.—cut out of paper and properly arranged—are gummed on the right side and placed on the inside of thin glass vases. A coat of varnish is applied when the figures are dry, then a coat of oil-paint of a suitable color, and lastly, another coat of varnish. The effect, where the pattern is well arranged, is good, and the glazed surface of the vase with the opaque color within forms a good imitation of china. Generally speaking, the taste shown in the arrangement of the figures is by no means good, and in some it is execrably bad; so much so, that it is more than probable that this fashionable occupation will exercise a pernicious influence on the public taste. It is a kind of patch-work in which the most incongruous designs of all nations and periods, Greek, Etruscan, Egyptian, Chinese, Indian, and Modern European, are jumbled together in inextricable confusion, and with a total ignorance of artistic effect and the rules of ornamentation.

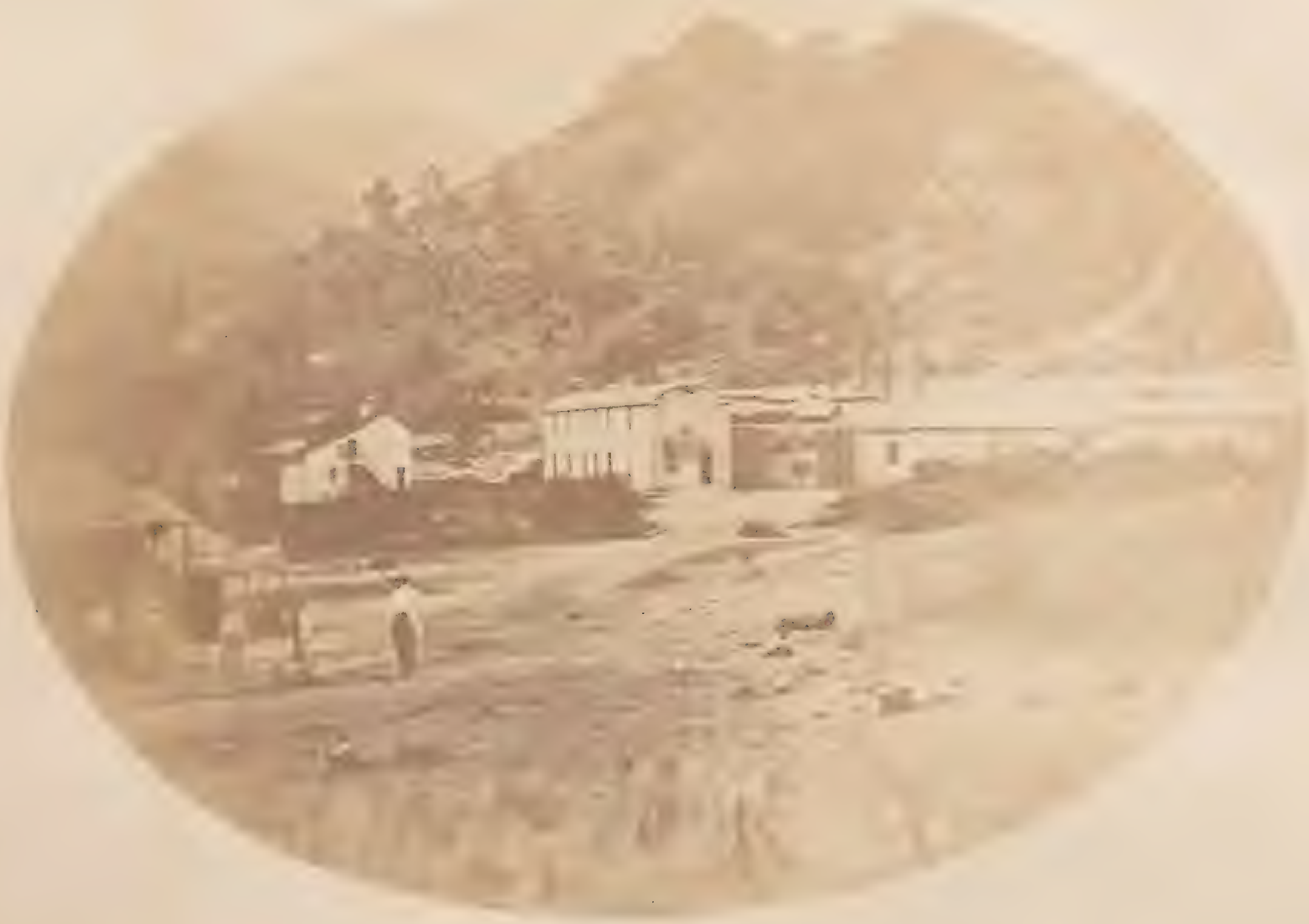
From the Jour. of the Pho. Soc.

STEREOSCOPE PICTURES.

There are some subjects intimately connected with our art, about which discussions only seems to produce greater differences of opinion; such as, for instance, the composition of the iodizing bath in the waxed-paper process, the orthodox color for positives, and, pre-eminently, the proper distance apart for the two points of sight in obtaining stereoscopic pictures. The want of agreement in the two former instances seems natural, and will remain so, doubtless, as long as they are merely matters of taste; but in the matter more especially under our notice at the present time, we confess we feel surprised at the almost random opinions hazarded on a subject which ought above all others to yield so easily to theory tested by experiment. The great stumbling-block appears to be, that what is wanted, namely a truthful image of nature, can of necessity be only obtained by strict adherence to the 2½ inches which Nature has chosen for the width between the eyes. Now, however perfect our senses are, there is always an insatiable craving towards improvement: we cannot, it is true increase the diameters and focal lengths of our eyes respectively to 10 inches and 12 feet; neither would it be quite convenient to widen their lateral separation 30 or 40 times; but the ingenuity of our philosophers has shown us how these same ends may be effected by the use of the strictly parallel instruments, the telescope and stereoscope.

Let us compare the two. Supposing we wish to see a castle which is 10 miles from us, as it would be were it only ¼ mile off, we apply such a power to the telescope that the object shall be magnified 40 diameters, and the desired result is at once obtained. But now, not content with seeing merely the height and breadth magnified (the x and y of the mathematicians), we wish to see the depth also (the z) increased; the buttresses and towers must have their proper truthful relief, as they would really appear to an observer only ¼ mile distant: we therefore separate the two points of sight (the two positions of the camera) 40 times, *i. e.* upwards of 8 feet apart, and the result must be, for that particular object, pure undistorted truth; of course, just as, in the first example, objects in the foreground cannot be absolutely in focus at the same time as is the more distant castle, just so will objects in the foreground of the stereoscopic image appear with exaggerated depth.

One word respecting the effect of the parallelism of the Cameras on the resultant images. If we wish to copy an object only a few feet distant, the most obvious thing that would first be done, would be to point the Cameras inwards, so that the prolongation of the axes of the two lenses would meet at the object: more careful consideration would, however, show that the convergence of these two axes must of necessity produce certain results in the ultimate image, which might be avoided by keeping them parallel: the position of the two finished pictures in the stereoscope should be inclined to each other, as were the two sensitive plates in the cameras, and must only be mounted on the same flat surface when the cameras were originally placed parallel, or distortion will of necessity be the result. There is another effect produced by the same cause, which in many pictures is as painful to the eye as the most exaggerated relief; it is this: in the usual way of mounting stereoscopic pictures, especially transparent ones, the mount is so made as to form a frame in which the object is seen. When the two cameras are parallel, the principal object cannot be in the centre of both plates at the same time: it will be displaced laterally towards the right in the picture intended for the right eye and to the left in that for the left one, and a little consideration will show that the result of this will be, that the image seen in the stereoscope will appear as if it were projected *behind* the frame. With convergent cameras, however, the effect is different: the phantom image will be projected *in front of* the frame, producing an appearance of unreality, as painful to the eye as it is antagonistic to the effect intended to be produced.



A VIEW IN MORMON ISLAND, CALIFORNIA.

Negative by C. Farrand from a Daguerreotype.

From the Liverpool Photographic Journal.

INVENTION OF PHOTOGRAPHY.

[Extracted from the Journal of the Society of Arts.]

In a French work, lately published,* in which a review is given of the results of photography, as shown in the Paris Exhibition of 1855, after awarding great praise, to the works of Mons. Bayard there displayed, the author proceeds as follows,—

"Mons Bayard is one of the inventors of photography on paper. When this discovery existed only in the limbo of science, that is, before the publications of Fox Talbot, he, by himself, had already discovered, in his own secluded retreat, the method of fixing on paper the images of the camera obscura. The fact, at the present time, is almost unknown. For this reason, if the reader will permit me to digress, I will relate how Mons. Bayard came to discover the art of photography on paper, and how his discovery has remained a secret from all. The tale, besides, is not long; in fact, as we should say, it is only the history of a peach. Mons. Bayard is the son of a respectable local judge, who exercised his duties, in a small provincial town. He occupied his leisure hours in cultivating his garden. In this garden was an orchard, whose spendid peaches ripened under the autumn sun. Mons. Bayard, the father, was in the habit every year of sending to his friends baskets of this fine fruit, and the natural pride of a proprietor, he took pains, when he sent them out, to mark by some unmistakeable sign that the fruits were the produce of his garden. He conceived a singular mode of affecting his object, which, unknown to the inventor, was a real photographic process. He picked out a peach on the tree in the process of ripening; it was, as you may imagine, one of the best—one of those '*peches a trente sous*,' which, in after times, thanks to Mons. Alexander Dumas the younger, have played so conspicuous a part in the world—or rather, the dramatic world. In order to preserve it from the action of the sun's rays, our judge took care to cover his peach with leaves. When the peach thus defended from the sun's rays had acquired the desired size, he pulled off the leafy covering, and left the fruit freely exposed to the influence of the light, save that he gummed on the surface of it the two initial letters of his name neatly cut in paper characters. At the end of a few days, when the protecting papers were removed, the two initials were found distinctly marked in white on the red ground of the fruit, which thus became impressed with an unquestionable stamp at no greater cost than the sun's rays. This occurrence, which young Bayard each year was in the habit of witnessing, naturally made an impression on his mind. As a child, he amused himself by repeating this effect of the sun on pieces of pink paper braided into the form of a cross. The parts of the paper concealed from the light by the overlying bands preserved their color, while the other parts were quickly bleached. Afterwards, having tried, like many others, to fix the images of the camera obscura, Mons. Bayard conceived the idea of using for the purpose the rose-colored paper which had served to devert his infancy. But placed in the camera, the paper was not sufficiently sensitive to the light. Mons Bayard then resorted to the use of chloride of silver in lieu of this inactive paper—the very photographic agent in use at the present time. He thus succeeded in obtaining actual photographic impressions on paper, with this remarkable circumstance, that the images were direct, that is, without the necessity for the use of a previous negative. In the picture obtained, the lights corresponded to the lights of the object, the blacks to the shadows. His process consisted in exposing paper impregnated with chloride of silver to the action of the light, but only up to a certain point, which experience had taught him. When he wished to use it for obtaining a photographic image, he soaked this paper in a solution of iodide of potassium, and exposed it to the action of the light in the camera obscura. The rays of light had the effect of blanching, or rather of giving a very light yellow tint to the silver salt in those parts on which the light shone. There remained only to fix the images by means hyposulphite of soda. Such is the process of photography on paper which Mons. Bayard invented, and which he, for the sake of his reputation, was to blame in desiring to keep secret. It was then that those beautiful impressions were obtained which Mons. Depretz showed us fifteen years ago, at his lectures on Physics, at the Sorbonne, and which he passed from hand to hand without being able to guess by what magic such marvels had been produced. How could it be guessed that such splendid effects had their origin simply from observing the action of the sun's rays on a peach, and that the delicious gift of the Persian of old had exercised so great an influence on the progress of modern physical science. These very pictures, which so charmed us at the Sorbonne, I think I had the pleasure of recognizing in the case sent by Mons. Bayard to the Exhibition. Of course, it is understood that Mons. Bayard no longer obtains his pictures by his old method. He now practices, like almost everybody else, photography on glass, but he has carried it to great perfection.

From the Jour. of the Phot. Soc.

A NEW PHOTOGRAPHIC PAPER.

At the Royal Institution, on the 3d inst., the Rev. J. Barlow gave a most interesting lecture on a subject which will ere long attract great public attention. Mr. W. E. Gaine has discovered the remarkable fact, that by a momentary immersion of paper in strong sulphuric acid, diluted with half its bulk of water, and allowed to cool, and then instantly washing it free from acid, first in plenty of water, and then in weak ammonia, it becomes endued with such extraordinary tenacity, that whereas a band of the original paper, of about an inch in width, breaks under a weight of seven or eight pounds, in its modified condition it will support nearly a hundred weight. The lecturer stated that Messrs. De La Rue & Co. had entered into an arrangement with the discoverer to introduce it into commerce, where, from its almost indestructibility, it will doubtless supersede parchment in many of its applications. Specimens of engravings were exhibited which had been so treated *after* having received the impression: the acid had in no way injured the lines of the engraving, whilst the great contraction which the paper underwent, gave a delicate softness and sharpness to the picture. Several photographs were likewise exhibited which had been printed on this parchment-paper, as it is called, the peculiar hard nature of the surface enabling photographers, the inventor states, to obtain beautifully rich tones with a far less expenditure of nitrate of silver than at present.

On seeing the really wonderful change which had by this simple means been wrought in an engraving, the thought instantly occurred to me, what would be the effect of treating a finished photograph in this manner? We know of many instances in which a strong acid exerts apparently less energetic actions on bodies than the same acid diluted; and it was just possible that the metallic compound, whatever it may be, constituting the dark part of a positive paper photograph, might pass unscathed through the ordeal; the idea was at all events well worth putting to the test of experiment, and, accordingly, that same night, strips of photographs, selected as samples of different tones of printing, and various kinds of paper, were passed through the acid according to the plan above stated.

The result was one which I certainly had not anticipated: the color and tint of the picture, even in the most delicate halftones, remained perfectly intact, while the powerful, yet uniform contraction of the paper added considerably to the sharpness; the paper was, besides, suddenly gifted with such great strength, that not only would it bear the roughest handling during the washing operation, without even the possibility of tearing it; but at any after-time, when finished and mounted, it would bear hard rubbing with soap and water and a wet cloth, without the slightest roughening or abrasion of the surface, if it were sufficiently dirty to render such a mode of treatment advantageous. Added to this, the surface (of any unalbumenized print) assumed a peculiar glossy appearance, giving a richer finish to the picture, without the glare which is so much objected to in albuminized pictures. Another effect, which time alone can decide whether or no it may be added to this long list of advantages, was this: a picture which was fading rapidly, was so treated on one half only; there was a powerful odor of dydrosulphuric acid evolved, and certainly there has been no further fading since, although the short space of time which has elapsed since trying the experiment, makes it difficult, as yet, to appreciate any difference between the two halves as regards their intensity. W. C.

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* 'Les Applications Nouvelles de la Science à l'Industrie et aux Arts en 1855.' Par Luis Figuier, Docteur és Sciences, Docteur en Médicine, agrégé de Chimie à l'Ecole de Pharmacie de Paris, &c. Paris: Victor Masson. Place de la l'Ecole de Médicine, 17; Langloit et Leclerq, Rue des Mathurins St. Jacques, 10. 1856.

From the Liverpool Photographic Journal.

ON THE APPLICATION OF LIGHT

And Electricity to the Production of Engravings--Photogalvanography.

BY THOMAS A. MALONE, F.C.S.,
Director of the Laboratory in the London Institution.

"The subject of this discourse is one with which the speaker has been for some years practically acquainted. In 1844, he experimented for many months upon the engraving process of M. Fizeau. Since that time he has closely watched all the steps of improvement that have been taken, down to the latest investigations of Talbot, Niepce de St. Victor, Pretsch, and Poitevin. He ventured thus to think himself fairly entitled to lay before the auditory the numerous remarkable and beautiful specimens he had gathered, or kindly been furnished with, accompanied by such commentaries and notices of processes as the time admitted.

"The various methods hitherto devised for the accomplishment of that important problem, the certain perpetuation and cheap multiplication—by means of printer's ink and the ordinary printing presses—of the images of natural objects, as obtained in the camera obscura by the process of ordinary photography, may be arranged under three great divisions.

"The *first* method, in which light was used to aid the engraver's art, was almost coeval with the first attempts made to produce sun-drawn pictures. Indeed it has been asserted that photography and photographic engraving were invented between the years 1813 and 1827, by one man, Nicéphore Niepce, of Chalon on the Saône. A reference, however, to the Journal of the Royal Institution* would show that photography really sprang from the labors of Thomas Wedgwood and Humphrey Davy, as far back as the year 1802.

"Although we cannot accord to Nicéphore Niepce the merit of originating photography, we must give him the undivided title of founder of the art of photographic engraving; and, moreover, acknowledge that he was the first to fix not only a *direct positive* photograph, but also to secure on metal and glass plates the images of the camera, and this long before Daguerre produced his wonderful plates. Of this there can remain no doubt, after a study of the remarkable specimens which Dr. Robert Brown has so kindly enabled photographers now for the first time publicly to examine. It was not generally known that Niepce's images of 1827 had so much that is beautiful, in common with the daguerreotype of the later date. Daguerre's pictures may be said to be only exalted examples of the same phenomenon; yet the processes are widely different. Niepce's method was beautifully simple, and as it gives us the groundwork of his etching process, must be briefly described. He took a bituminous substance called jew's pitch, or asphaltum; upon this he poured oil of lavender to resolve the bitumen into a varnish with which he could coat plates of metal or glass. He used chiefly pewter and copper plated with silver. A plate coated and dried was exposed to the light with an engraving superimposed, or it was placed in the field of the camera obscura, just as Wedgwood and Davy placed their prepared papers; and with a certain similarity of result, inasmuch as a photographic image was obtained on the varnished plate. This image, however, unlike that of Wedgwood and Davy was *not visible.* The plate had to be submitted to the solvent action of a mixed liquid, composed of one part of oil of lavender and ten parts by measure of *white oil of petroleum*, or mineral naptha. On immersion in this fluid the remarkable fact revealed itself, that wherever the light had acted the varnish had become insoluble, and in a certain degree proportionately so to the intensity of the light. There were not only lights and shadows but half tints. The picture, as soon as developed by the solvent, was removed, drained, and washed with water to check all further action. The shadows of the picture were now represented by the parts of the white metal, or glass plate laid bare; the lights were given by the film of varnish which the light had hardened, and the solvent had left untouched. The plate now finished was capable of being etched by simply pouring engraver's acid upon its surface. The varnish would protect the metal from the acid over the lights of the picture; while the shadows, represented by the bare metal, would be bitten in the manner common to all etching processes. On now removing the protecting varnish, the plate could be inked and printed from by the common copper-plate printing press. Such are the essential details of the first of the photographic engraving processes. The specimens on the table were presented in 1827 to Mr. Bauer, late of Kew, by Nicéphore Niepce, who for a short time resided at Kew, on a visit to a brother in infirm health. Niepce prepared a statement regarding his invention, for presentation to the Royal Society; but as he at that time kept his process secret, his manuscript was not published. Niepce appears to have returned to France, disappointed at his ill-fortune.

"Niepce's bitumen process was improved by his nephew, M. Niepce de St. Victor, who has published a treatise† on it, giving the necessary minute instructions. The main features do not differ from those above given, though greater sensitiveness and perfection have been obtained. MM. Mante, Belloc, and Nègre, MM. Barreswil Davanne, Lerebours, and Lemerciere have also advanced the bitumen process: the latter gentleman having applied it to lithographic purposes. The process is still under trial, but the difficulties of obtaining a constantly uniform result at present stands in the way of its general adoption. It still deserves a thorough investigation.

"The *second* method of producing photographic engravings is founded upon certain properties possessed by the daguerrean image. It is found that a daguerreotype unfixed by gold is acted upon by nitric acid in its shadows, while the lights long resist the biting action of the acid. This is explained by assuming that the shadows are of pure silver, and that the lights consist of mercury—the acid attacking the silver by preference. The fact is, that an etching is obtained by merely leaving diluted nitric acid in contact with the plate. The etched plate is then inked and printed from, as in Niepce's case. Dr. Donné, of Paris, appears to have been the first to devise this method. Dr. Berres, of Vienna, also used nitric acid for this purpose; but the action is not easily controlled, and this form of the process is fallen into disuse. In 1842, Mr. Grove published in the Philosophical Magazine, a method by which Daguerre's images can be engraved by the chlorine evolved by voltaic action, when the daguerreotype plate is made the positive terminal of the battery, and immersed in diluted hydrochloric acid; the negative wire being terminated by a plate of platinum, which was placed opposite and parallel to the photographic image. This process is much more under control than the last. [Prints from plates so engraved in 1842 were on the table]. This process is also worthy of further investigation. Here the image is truly drawn by light and *engraved by electricity.*

"M. Fizeau, about the year 1844, also patented in this country, in conjunction with M. Claudet, a process for engraving the daguerreotype image. The speaker was instructed in this process by M. Fizeau, and worked for many months at its perfection. Results obtained both in France and England were upon the table, and showed that in cases where great delicacy of delineation was required, as in certain anatomical subjects, this process had not been surpassed. It quite justified the formation of a second division of the available photographic engraving processes.

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* Journal of the Royal Institution, vol. 1, p. 170.

† Traité Partique de Gravure Héliographique, par M. Niepce Saint Victor, Paris, June, 1856.

"M. Fizeau, like Mr. Grove, availed himself of the affinity of chlorine for silver, but relied on chemical action for its application. He (M. Fizeau) made a solution of common salt and nitrite of potash in water, to which he added nitric acid. This mixed acid acted immediately, when aided by warmth, upon the silver of Daguerre's plate, and left untouched the parts supposed to be completely covered by mercury. Chloride of silver was thus at once formed in the shadows of the images, and after some time in the half tints also. A very faint etching was thus produced. A prolonged application of the acid would not further deepen the etching, since the insoluble chloride of silver at first formed protected the faintly etched parts from a further deepening corrosion. It was therefore necessary to remove the chloride of silver by washing with a solution of ammonia. This effected, the plate was ready for a second application of the acid, when chloride of silver would be again formed, to be once more removed by ammonia; and this alteration of solutions could be repeated a certain number of times, the etching increasing in depth at each operation. But in practise it was found that after a few applications of the acid, the lights of the image also gave way, and thus the engraving came to an untimely end. To remedy this circumstance was M. Fizeau's great aim; and he succeeded in a marked degree by heating the etched plate in a strong and boiling solution of caustic potash, after which treatment the lights resisted well the injurious action they had before suffered from. It is not clear how the potash acts. M. Fizeau has supposed, and the speaker was inclined to support the view, that the potash acts merely as a hot bath, possessing a proper and regular temperature, which might restore the continuity of the amalgamated surface of mercury and silver, as often as it was weakened to the point of breaking by the *underbiting* of the acid liquid. The heating in potash is an important feature in M. Fizeau's process. As soon as the etching has been carried as far as possible by the acid mixture, the plate is dried and inked with fine printer's ink and an impression may be immediately taken; but M. Fizeau prefers that the ink should be allowed to dry in the hollows of the plate, the unetched parts being wiped clean, so that gold may be deposited only upon the bright parts by the electrotype process. On now removing the ink, ordinary diluted nitric acid may be safely applied to the plate, to deepen still more the shadows, without any danger of destroying the lights of the picture. This last step causes M. Fizeau's etchings to possess greater vigor than those obtained by Donné's or Grove's processes. The danger is, that under-biting may remove the half tints. However, some beautiful results obtained by the late Mr. Hurliman, a skilful engraver in Paris attests the worth of this method. M. Fizeau, foreseeing that the wear and tear of the silver plates might be considerable, thought to use the electrotype process to produce fac-similies of the engraved plates, reserving the original plate unworn to supply any further demands, thus allowing any number of impressions to be struck off. Plates so electrotyped by the speaker twelve years ago, some of which were afterwards worked upon by an engraver, were placed upon the table. The patent-right in this process will soon expire.

"The processes of the *third* and last division were, it must be confessed, very desirable; notwithstanding the numerous satisfactory specimens obtained, and still to be obtained, by the processes previously described. The truth seemed to be that none of the processes gave uniformly satisfactory results; hence the necessity of being acquainted with the capabilities of all the chief known methods, and of impartially comparing them, with a view to produce any special required result.

"Mr. Henry Fox Talbot opens the third division by his method known as the gelatine and bichromate of potash process, in which a steel plate is covered with a liquified jelly, containing bichromate of potash in solution. This jelly was allowed to dry upon the plate after the manner of Niepce's varnish; and the gelatined plate might be used in a similar way to reproduce engravings or the images of the camera; the light, as in Niepce's case, doing its work by altering and hardening the gelatine whenever it fell with sufficient intensity. On removing the plate from the light, and immersing it in water, it was found that the gelatine had become comparatively insoluble where the light had acted, but it retained its usual solubility over those parts which were in shadow. Thus the metal could be partially laid bare, as we have seen was the case in the bitumen process; the lights now would consist of the altered gelatine, and the shades be represented by the bare metal; it is evident we have only to pour an acid upon the plate to obtain an etching: but here some care and ingenuity will be required. Nitric acid acts so energeticaly and so uncertainly on the steel plate, that but little success would attend its employment. Accordingly Mr. Talbot was led to seek a better engraving liquid. This was found to be a solution of bichloride of platinum, which appeared to act in the desired manner. The advantage of any process on steel plates would be obvious, from the great number of impressions that so hard a body would yield under the wearing action of the printing press. It might here be observed that the bitumen process had also been applied to steel plates by M. Mante, in a series of natural history plates, published in Paris; and also by M. Niepce de St. Victor, in the frontispiece to his treatise.

"In 1854, Herr Paul Pretsch, of the Imperial printing office of Vienna, patented in this country, and subsequently in France, a process which he has called *Photogalvanography*. He used Mr. Talbot's materials, but with certain additions, and avails himself of a property of the gelatine which allows of his dispensing with the acid etching altogether. We are unable to speak with certainty of the exact comparative merits and capabilities of the two processes. Mr. Talbot's results are on steel; Herr Pretsch's on copper. If other things be equal, the steel would possess the advantage of greater durability. Herr Pretsch takes one part of clear gelatine or glue, and about ten parts of water to form a jelly, which he misses with a strong solution of bichromate of potash; to this mixture he adds a fresh portion of jelly, containing nitrate of silver in solution; the whole being warmed and thoroughly mixed for about ten minutes. He next adds a third portion of jelly, containing a comparatively small quantity of iodide of potassium; then the whole mixture is strained, and is ready to coat the glass plates which are at first used in this process. A plate being coated and dried is applicable to all the purposes enumerated in the early bitumen process. It can be used to copy engravings by superposition, or be made to receive the images of the camera. However, it is found that the most practical way to make use of the bitumen and gelatine processes, is to copy from a positive photograph which has resulted from a collodion or a Talbotype negative. We have only to place the positive print upon the dried orange-colored jelly, press it in contact by a plate of glass, and expose the whole to the light for some time, when we shall find upon remaval that we have obtained upon the dried jelly a photographic representation of the positive print. Wherever the light had acted strongly the plate will have changed from its bright orange-red color to a more tawny hue; this latter shade of color gradually passing in the half tints into the unaltered red of the parts completely shielded from the light. The parts acted upon by the light have now become, as in Mr. Talbots's case, comparatively insoluble in water. So far, Herr Pretsch's process has much in common with Mr. Talbot's, but the two experimenters now *diverge* widely. Herr Pretsch, instead of dissolving away the unaltered jelly, merely soaks the plate in water long enough to cause the unaltered gelatine to swell, and so to rise above the surface in such a way that we obtain a picture in relief resembling the condition of an ordinary cut wood-block. The tawny colored parts do not swell, and so they remain depressed, representing the sunken portions of the wood-block. If the swelled gelatine were hard enough, we might at once ink the raised parts by a roller, and print in the usual way. This however, is impracticable; and moreover, surface printing is not in this art deemed to be the best mode of procedure. A device, analogous to one used in type printing, is therefore adopted; a sort of stereotype process is gone through. A mould, in softened gutta percha, or other suitable mouldering material,—possibly a composition of wax or stearine, is made; this mould will of course have the raised lines or dots of the original gelatine represented by grooves and cavities apparently graven in the surface; and here, again, if the mould were firm enough, we might ink it as if it were an engraved copper-plate, and print by the copper-plate printing press. From these considerations it will be evident that we have only to seek to convert these yielding surfaces into enduring ones, and we shall end our labors successfully. This the electrotype art enables us to do. We have simply to render the mould a conductor of electricity, by black lead, or finely divided metal, and we can deposit in it copper to any amount. We shall thus get in copper a fac-simile of the original swelled gelatine plate. But since this requires surface printing, and that is not to be preferred, we must once more apply our electrotyping process, using this first obtained and raised copper-plate as a *matrix*, to produce as many engraved or sunken plates, ready to be printed from, as we may desire. The original matrix remains, as in Fizeau's case unworn.

"The above is an outline of the more important features of Herr Pretsch's invention. There is one more point that deserves attention. In all the engraving processes hitherto described, there is a difficulty in obtaining a granular surface over the etched parts, necessary to hold the amount of ink required by the printer. In Pretsch's process this difficulty remarkably enough does not present itself; the swelled surface breaks up in a direction vertical to its surface into little masses which are just what is desired; this result is quite characteristic; it has been attributed to the presence of particles of chromate of silver, or of iodide of silver. Would it be too far-fetched to suppose that it is another beautiful instance of the slaty cleavage action demonstrated by Dr. Tynall? However this may be, the fact is very important for the success of the invention. The chemistry of the processes of the first and third divisions of this subject is but little advanced. M. Niepce de St. Victor has found, what M. Chevreul had anticipated, that the oxygen of the atmosphere is essential in the bitumen process. In an illuminated vacuum the result could not be obtained, although ordinary photographic action went on quite as well as in air. With reference to the gelatine processes, it might be observed that Mr. Ponton, who first used bichromate of potash as a photographic agent, and M. Edmond Becquerel, who extended its use on paper, both found that the sizing materials became more insoluble by the photographic action. It was believed that chromic acid was liberated by the sun's rays, since simple mono-chromate of potash produced no effect. On mentioning these facts to a friend (Dr. Hugo Muller), the speaker learned that solutions of chromium had been employed in Germany in experiments on tanning skins; and it therefore suggested itself that the chromic acid set free might, in reacting on part of the gelatine, liberate an oxide of chromium, which, when combined with the rest of the gelatine would form a species of artificial leather; thus rationally accounting for the comparative insolubility of the altered and tawny colored portions of the jelly. The subject, however, requires and deserves a more thorough investigation.

"M. Poitevin, of Paris, has applied the gelatine and bichromate of potash process to lithographic stone, and his results, placed on the table, would well bear a comparason with those obtained by the other methods described in this division.

"The speaker, in conclusion, expressed his opinion that these engraving processes would greatly advance the art of photography itself, particularly in its applications to the delineation of colored objects in which it is still very imperfect, although some progress has been made."

Inflection signifies the turning of rays of light from their course by the attraction of opaque bodies.

From the Liverpool Photographic Journal.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The third meeting of the present session was held at the Royal Institution, Colquitt-street, on Tuesday evening, March 17th, but the notice of it not having been forwarded for insertion as usual in the *Liverpool and Manchester Photographic Journal*, there was but a limited attendance of members; Mr. Bell, one of the vice-presidents, was called to the chair.

The Chairman in opening the business of the evening, suggested that, few members being present, the proceedings should assume a conversational form, the experience of previous evenings having shown that the informal course occasionally pursued was frequently more productive of interest ,and more suggestive in its results, than the more elaborate papers read before the Society.

Mr. Forrest wished to ask Mr. Berry, or any gentleman who had practised Taupenot's process, if he could inform the meeting as to the best method of maintaining the efficiency of the aceto-nitrate bath, which he found invariably became impaired after being some time in use; and whether it arose from contamination by the albumen, or by loss of acetic acid.[*] At the same time he would mention that, in all cases where a roughness of surface was visible on the albumenized plate after being sensitized, from the formation of oxide of silver, it could be removed by being rubbed with a small pledget of cotton; and in a similar way the striæ that were manifested in developing might be removed. He believed that the presence of acetic acid in every case made the process more or less uncertain.

In answer to a question, Mr. Berry suggested that citic acid might be employed in place of acetic acid, but it was liable to the same objection—that it might by possibility decompose the silver bath.[†]

Mr. Keith exhibited a very interesting specimen of photography in a picture, taken on an enamelled white tablet, which by transmitted light gave a correct image, of a pure bistre color, and seemed admirably adapted for pictures, lamp-glasses, transparencies, &c.

Mr. Berry then exhibited a photographic negative taken by Mr. Maxwell Lyte's new meta-gelatine process, as described in the last number of the *Liverpool and Manchester Photographic Journal*. Eulogizing the simplicity of the process, he considered it superior in its rapidity to any yet published, the picture exhibited having been taken in thirty-five seconds,

Mr. Banner exhibited his stereoscopic camera, improved on Mr. Marriott's, shown at the first meeting of the present session. The chief points of distinction between the two designs are that in Mr. Mariott's camera the image is taken on the surface of the collodion, by which means it is inverted, if the collodion film is mounted on the outside, as is usual with colored photographs, while in Mr. Banner's it is taken through the glass, and the resultant image is non-inverted in the case of a colored picture; another point of difference being that Mr. Banner's camera revolves on an axis, instead of being moved on a straight rod, by which a convergence of the lenses or lens may be obtained approximately to that of the human eye. The two cameras having in common,—1st. The revolving disc in front of the box, by which one lens is made to take four distinct images on the prepared glass, or two complete stereoscopic slides. 2nd. The partition of the box itself into four compartments—light tight—in place of the ordinary adjusted stereoscopic frames. The prepared glass is placed face down in the rabbet of the frame, and maintained in its position by a small silver bar closing over at each corner.

The Chairman suggested to each member the desirability of saving the refuse deposits in every process of photography carried on, in which silver was employed. This recovery of silver from the washings equalled nearly 50 per cent. of the quantity he had used, and he did not doubt that the gain would be equal in almost every case, and this was a matter of special importance to professional photographers.

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[*] The coloration is due to albumen derived from the plates—[Ed. L. P. J.]

[†] It will not.—[Ed L. M. P. J.]

Allusion having been made, by Mr. Banner, to the fact that ordinary glazing colors might be applied to photographs for the purposes of coloring with frequently considerable effect and without artistic pretension, and by this means with the preservation of the outline of the photograph—so desirable in every case for truth's sake—Mr. Berry suggested that it might be advantageous, in every instance, to cover the photograph with color, as in case of fading the image would remain unimpaired.

Mr. Foard remarked that, on the contrary, the greatest injury in practice was found to arise from the use of body color employed to cover blemishes in the photograph, to obtain a smooth and even surface, as this almost invariably faded, even when the photograph was unimpaired, the practice of the most eminent artists authenticating the use of transparent water colors.

From the Journal of the Pho. Soc.

NEGATIVE PRINTING PROCESS.

BY SIR W. J. NEWTON.

At the request of several members, that the precise mode of proceeding which I showed at the last monthly meeting of the Society should appear in the next Journal, I beg in the first place to describe the manner of making the gelatine mixture.

I find that the purest and strongest gelatine is that which is prepared by Messrs. Bell and Co., chemists, in Oxford Street. Take of which 1 drachm and add 5 ounces of camphor-water, and when entirely dissolved *by heat* add 2 drachms of loaf-sugar; shake well, and, then add twelve drops of the oil of cloves and 1 ounce of spirits of wine; shake well, and submit to further heat.

Dissolve 12 grains of iodide of potassium, 6 grains of bromide of cadmium, 12 grains of chloride of barium or common salt, in 1 ounce of camphor-water; shake up well, let subside, then filter; add to *each* ounce of the above gelatine mixture 1½ drachm of the iodizing liquid, then brush over the paper on one side with the above, *which must be very warm*, so as to lay evenly as well as to penetrate the paper; lay flat to dry. If English made paper is used, it will only require *half* a drachm of Bell's gelatine to the same quantity of camphor-water, &c., on account of the *size* which it contains; but French-made paper requires the gelatine to be at least double the strength.

N.B. I find that French paper gives more half-tint and detail, but English paper gives greater vigor and brilliancy, so that, according to the subject, one or the other may be used with advantage.

To make a substitute for, or imitation of, lemon-juice, dissolve 20 grains of citric acid in 1 ounce of camphor-water, add 20 grains of loaf-sugar, and two drops of the oil of cloves.

Dissolve 30 grains of nitrate of silver in 1 ounce of camphor-water, and add three drops of the above citric acid; I find that for every 10 grains of nitrate of silver, *one drop* is enough, but it must not exceed two drops. Excite the paper, blot off and expose in the printing frame from 5 seconds to 1 minute, according to the light and nature of the negative

Develope with gallic acid and the citro-nitrate of silver; when sufficiently out, hold it up and pour water upon it, and then immerse in hyposulphite of soda and alum bath. The mode of preparing the bath is by dissolving 2 ounces of hyposulphite in a quart of water and 2 ounces of alum in a quart of water then mix them both together; the positive may remain from half an hour to several hours. I find generally that it is improved by long immersion (particularly if it be of a reddish character); but it is not necessary to let it remain longer than to *be sure* that the redundant chemicals are extracted; when taken out immerse in alum-water,—1 oz. to 2 quarts of water,—for at least half an hour, in order to remove the hyposulphite; then in three or four *entire changes of water*: take out one by one, and dry between several thicknesses of linen-cloth of an absorbent character: lay flat to dry.

Very good English-made paper may be obtained from Mr. George Waterson, No. 56 North Hanover Steeet, Edinburgh. I find it not only good for positives, but for negatives also: it is the size of the usual French paper, and is two shillings a quire; by application to Mr. Waterson he will forward any quantity, from one quire upwards (carriage paid), by sending a post-office order, or enclosing postage stamps. On the whole, I think that Marion's French paper is the best; I prefer the thin kind.

OUR ILLUSTRATIONS.

We present our readers this month for illustrations, first, a capital view of

OLD COLUMBIA COLLEGE;

the negative by Mr. L. E. Walker. A graduate has furnished us with the following sketch of its history:

The question of the establishment of a College in the city of New York, was a long time in agitation before the design was carried out. In the commencement of the year 1753, however, by Act of Assembly, James De Lancy, then Lieutenant-Governor of the Colony, together with various other parties of different religious tenets were appointed Trustees of the proposed Institution. By the same Act, a fund was also provided to be raised by a succession of lotteries.

The Trustees in the year 1754 elected Dr. Samuel Johnson, of Conn., as President of the intended College, who, in the month of July commenced a class in the vestry room of Trinity Church. On the 31st of October in the same year, the Royal Charter was passed in the reign of George II., and it is from this period we must date the commencement of the College. The Governors named in the Charter, are the Archbishop of Canterbury and the first Lord Commissioner for Trade and Plantations, both empowered to act by proxies—the Lieutenant-Governor of the Province and other public officers, the Rector of Trinity Church, the Senior Minister of the Reformed Protestant Dutch Church—the Ministers of the German Lutheran Church—of the French Church, and of the Presbyterian Congregation, and the President of the College, all *ex-officio*, and twenty-four of the principal gentlemen of the city. The College was to be known by the name of *Kings College.* Previously to the passing of the Charter, a parcel of ground to the westward of Broadway, on which the College now stands, had been destined by the vestry of Trinity Church, as a site for the College Edifice, and accordingly after the Charter was granted, the grant of the land was made on the 13th day of May, 1755.

The process whence the funds of the Institution were derived, besides the proceeds of the lotteries above-mentioned, were the voluntary contributions of private individuals in this country, and sums obtained by agents who were subsequently sent to England and France. In May 1760, the College Buildings began to be occupied. In March 1763, Dr. Johnson resigned his office of President, and the Rev. Dr. Myles Cooper, of Oxford, who had previously been appointed Professor of Moral Philosophy and assistant to the President, was elected to fill the vacancy. In 1767, a grant of land was obtained under the Government of Sir Henry Moore of 24,000 acres, supposed to be situated in the northern part of New York; but upon the creation of Vermont into a separate State, this entire tract was included within the limits of that territory, and was thus lost to Columbia College. In 1790, by Act of the Legislature, certain lands were ceded to the Incorporated Academies, including Columbia College; among these lands were Governor's Island, but the Act so far as related to Governor's Island never went into effect; but in 1792, the College was generously remembered for this loss by the Legislature. In August 1767, a Medical School was established in the College. The following account of the Institution supposed to be written by Dr. Cooper, shows its condition previous to the Revolution.

" Since the passing of the Charter, the Institution hath received great emolument by grants from his most Gracious Majesty, King George III., and by liberal contributions from many of the nobility and gentry in the parent country, from the Society for the propagation of the Gospel in foreign parts, and from several public spirited gentlemen both in America and elsewhere. By means of these and other benefactions, the Governors of the College have been enabled to extend their plan of education almost as diffusedly as any College in Europe, herein being taught by proper masters and professors who are chosen by the Governors and President, Divinity, Natural Law, Physic, Logic, Ethics, Metaphysics, Mathematics, Natural Philosophy, Astronomy, Geography, History, Phrenology, Rhetoric, Hebrew, Greek, Latin, Modern Languages, Belles Lettres; and whatever else in literature that may tend to accomplish the pupils both as scholars and gentlemen. To the College is also annexed a grammar school for the due preparation of those who propose to complete their education with the Arts and Sciences. All Students but those in medicine, are obliged to lodge and diet in the College, unless particularly exempted by the Governors or President; and the edifice is surrounded by a high fence which also encloses a large court and garden, and a porter constantly attends at the front gate, which is closed at 10 o'clock each evening in summer, and at 9 in winter, after which hours the names of all who enter are delivered weekly to the President. The College is situated on a dry gravelly soil, about 150 yards from the bank of the Hudson River which it overlooks, commanding from the eminence on which it stands, the most extensive and beautiful prospect. Of the opposite shore and the country of New Jersey, the city and Island of New York, Long Island, Staten Island, New York Bay with its Islands, the Narrows forming the mouth of the Harbor, &c., and being totally unencumbered by any adjacent buildings, and admitting the purest circulation of air from the River and every other quarter, has the benefit of an agreeable and healthy situation as can possibly be conceived. The visitations of the Governors are quarterly, at which times premiums of Books, Silver Medals, &c., are adjudged to the most deserving. This seminary hath already produced a number of gentlemen who do great honor to their professions—the place of their education and themselves, the Divinity, Law, Medicine, &c. &c., in this and various other Colonies, both on the American Continent and the West India Islands, and the College is annually increasing as well in students as in reputation."

In consequence of the disputes between this and the parent Country, Dr. Cooper returned to England, and the Rev. Benjamin Moore was appointed President *extempore* during the absence of Dr, Cooper, who, however, did not return. On the breaking out of the Revolution, the business of the College was almost entirely suspended, and it was not till after the return of peace, that its affairs were again regularly attended to. This suspension continued for about six years. The College Buildings were occupied as Hospitals—its movable property was scattered in various directions, and its students dispersed. In May 1784, all the Seminaries of learning in the State of New York, were by an Act of the Legislature, placed under the authority of Regents, who were styled Regents of the University—these Regents immediately set about the regulation of the College, the name of which was then changed to Columbia College.

The College continued under the immediate superintendance of the Regents until April 1787, when the original Charter with necessary alterations was confirmed, and the College placed under 29 Trustees, who were to exercise their functions until their number should be reduced by death, resignation, or removal to 24, after which all vacancies in the Board were to be filled by their own choice.

In 1787, Dr. Wm. Samuel Johnson was elected President of the College, but resigned in 1790, and was succeeded by Rev. Dr, Wharton who also resigned in about seven months, and was followed by Bishop Moore. In May 1811, Bishop Moore resigned, and in June following, the office of *Provost* was established, and the Rev. Wm. Harris and Rev. John M. Mason were chosen President and Provost. The Provost resigned his office in 1816, and since that time the College has been under the sole superintendance of a President.

In 1817, steps were taken for a thorough repair of the old edifice, which was in a very decayed state, and for the erection of new buildings. These alterations were made before the end of the year 1820.

Hr. Harris died in 1829, and was succeeded by Mr. Wm. A. Duer, L.L.D., who resigned in 1849, and the present President, Charles King, was elected.

We have thus given a concise sketch of the History of Old Columbia from its foundation to the present time. A History which we are ashamed to say is not generally known. It would be impossible in this short narrative to do honor to the massive learning which has graced this College in the persons of its professors. Yet we should deem ourselves truly ungrateful did we not specially mention in this connection, two of its professors of the present time—Charles Anthon, Professor of Latin and Greek, and John McVicar, Professor of Belles Lettres and Moral Philosophy. Too high a tribute of honor cannot be paid to the intellect of Charles Anthon. To say that he has by long and deep study, been able to grasp the entire history, mode of thought, character, manner, and language of the ancients, is to give but an idea of his attainments, and does not do him sufficient justice. Charles Anthon stands first among professors of the dead languages. His commentaries are preferred wherever the English language is spoken, and his translations of the Poets, Latin and Greek, rendered with the usmost truthfulness, ring throughout with the richest poetical music. Yet this man can stand for hours over a youth of twelve years, implanting in his intellect the seeds of the Latin Grammar. How truly this proves that pride and learning do not go together.

John McVickar is now the oldest professor in the College; and beloved by all who desire a professor to study their best interests. He is a man of the most general learning outside of the branches he professes, and is ever ready to impart instruction to those seeking it in the true spirit, but harsh and forbidding to those who do not seek learning for learning's sake, but merely to hasten through their academic career, to blazon to the world that they have graduated.

To the man of letters—to most of the brilliant intellects of America—there is no name to which the word Columbia is joined that is more pregnant with the dearest remembrances, and which strikes with more rapturous fire the heart-strings of his sympathies than this College. And now that its stones are to be entirely removed—for strength is yet pillared in its aisles—it is fitting the artist to show this and coming generations how well its walls have stood, and that the sunlight, too, which for full a century has clung round the building, should be the agent employed to perpetuate its memory in the hearts of its children.

To the *alumni* of this College, the removal of each particular stone is sufficient to open the fountain of tears. Many an eye have I seen wistfully upturned to gaze on their departing mother. Think you that those Senators and Statesmen of America, who within its walls have occupied the benches once filled by Hamilton and Jay, the Marcellus and Fabius of the Revolution, will witness the dismemberment of this edifice with unmoved hearts? Many a pang will they experience as they pass these untimely ruins, the place where the genius of their intellect were taught to expand, until they could range uncurbed through the most distant limits of the mental world. Who shall say that in the bitterness of their sorrow they will not mutter "desecration!" Would that we possessed a little of the English veneration!

The alterations in the College above-mentioned, were not such as to materially change its general appearances, and the present photograph may be considered to be a pretty fair representation of the original on a large scale. We leave the subject here, hoping some abler pen may take it up and do the College that high honor it deserves.

Our second illustration is a view in

MORMON ISLAND, CALIFORNIA;

negatives by C. Farrand, from a Daguerreotype by Young. These pictures were both toned in the same bath, viz.:

Water…………………………	2 gals.
Hypo. soda…………………	2 lbs.

Acetate of lead	1000 grs.
Chloride of sodium	1000 "
Chloride of gold (Burgess')	90 "
Chloride of silver	2 ozs.

They were first fixed in a solution of

Water	2 gals.
Hypo. soda	2 lbs.
Aqua ammonia	40 drops.

The paper is Canson's (as will be perceived a poor quality), salted as before—180 grs. chloride of ammonia to 1 gallon of water; and nitrated with ammonio-nitrate. The difference in the pictures is entirely due to the negatives. This toning bath will give pictures of the lightest brown color or of the deepest black.

From the Jour. of the Phot. Soc

ON THE PREPARATION OF PYROGALLIC ACID.

April 11, 1857.

To the Editor of the Photographic Journal.

My dear Sir,—I send you an abstract of an article by Baron, Liebig on the Manufacture of Pyrogallic Acid (from the 'Annalen der Chemie und Pharmacie' bd. ci. p. 47) which may be of sufficient interest, at least to *some* of the readers of the Journal, and may profit us all, by cheapening this important photographic material. The method described is the one which Baron Liebig has adopted for the last three years, and which yielded the greatest quantity among all the different processes which he had tried. I remain, yours truly,

E. Becker.

The material used is crystallized gallic acid, it having been found that nothing is gained by using powdered galls or an infusion of them instead The crystals are well dried, mixed with double their weight of roughly pounded pumice-stone, and the mixture put into a tubulated retort, which should only be filled to ¼ of its bulk. It is placed in a sand-bath and covered with sand very nearly up to the tubulus. A glass tube is inserted into the tubulus and reaches down till within ¼ of an inch from the mixture, while the upper end is in connexion with a flask in which a current of carbonic acid gas is generated.

The neck of the retort, which must be rather wide, reaches about 7 inches beyond the sand-bath and is placed loosely into a receiver, so that the latter can easily be removed. Keeping in mind that pyrogallic acid itself is decomposed into metagallic acid and water at a temperature very little higher than that at which it is formed, the object of the current of carbonic acid gas is evident, viz., to remove the pyrogallic acid from the hot retort as soon as possible after its formation, and to prevent the vapors from condensing in the upper part of the retort, in which case the crystals would be sure to melt and run down into the body of the retort and be decomposed. Moreover, in this current of gas the water formed in the decomposition retains its gaseous state in that part of the neck where the crystals of pyrogallic acid settle. In the receiver, where the vapors of water and part of the pyrogallic acid are condensed at the same time, a thick syrupy solution is formed, from which crystals may easily be obtained by evaporation, though never quite free of color.

The temperature must be kept as constant as possible, and the current gas be regulated according to its changes.

When the decomposition is in full course, the neck of the retort will rapidly fill with long, flat, white, shining needles, which may be removed with the beard of a quill When the neck acquires the temperature at which the crystals melt, they run down to a lower place and there harden to a crust, which is removed by means of a silver spatula. When melted, the crystals assume a reddish color, which cannot be removed by charcoal.

By this method from 31 to 32 per cent. of solid crystallized pyrogallic acid are obtained, the theoretical quantity according to Baron Liebig's formulæ being 39 per cent.* The remaining 7 or 8 per cent, which are lost, give to the carbonic acid gas which escapes from the receiver the appearance of a white smoke, and, by a suitable arrangement, a few more per cent might be saved.

From the Jour. of the Phot. Soc.

VARNISH FOR BACKING POSITIVES.

Burntwood Grange, Wandsworth Common.

To the Editor of the Photographic Journal.

Sir,—I have noticed frequent complaints of the qualities of black varnishes used for "blacking positives," and in offering the result of my experience to my brother photographers, I need simply say that I have never had reason to complain of my varnish since I first made use of it about four years since. It is the common "stopping out" varnish used by etchers, and I apply it on the collodionized side of the plate as soon as the latter is dry, pouring it on the centre and allowing the circle to extend itself by regularly depressing the four corners and allowing it to drain off for some time at one corner, if a rich golden-tinted color is required, but draining very slightly for a deep black. After draining reverse the corners of the plate, and when the varnish has almost reached the opposite corner of the plate, place horizontally to dry. If the varnish becomes too thick, thin with camphine.

I would not venture to occupy your space by such a trivial matter, but that I have seen such frequent complaints of what may be so readily obviated.

I remain, sir, yours faithfully,

C. M. Major.

From the Jour. of the Phot. Soc.

A SIMPLE PLATE HOLDER.

To the Editor of the Photographic Journal:

Sir,—Whatever the merits of our Photographers may be, legible hand-writing is not one of them: I know of no Journal in which there have been so many corrections of statements made in previous Numbers as in the Journal of the Photographic Society. I have sinned in this respect as well as others, and wrote the words "a 2 oz. measuring glass" so illegibly, that your printer read them as "a 20 gr. mercury glass," and so printed them.

In that Number there is a description of an ingenious plate-holder invented by Mons. M. Brulé: let me describe one which, at least for holding the plate while collodion, or the developing fluid, is being poured on, will be found simpler, lighter and more convenient, and will not be liable to corrosion by the liquid used, as the spring, at least, of Mons. Brulé's holder must infallibly be. As the holder I am about to describe is merely a modification of that recommended by Mons. Brebisson in his 'Nouvelle Méthode Photographique,' 1853, I lay no claim to originality. I have used them for over two years, and find them so useful, that I now take this method of making them known. They have at least this recommendation, that they are cheap (their cost cannot well exceed sixpence), and every one can make them for himself.

Take a strip of plate glass 3½ or 4 inches longer than the plate used, and from one-third to to one-half of its width; rub down the edges and cut off the sharp angles; then at 1 inch from each end fix on with marine glue (having previously scratched with a diamond the surfaces of the parts that are to be united) a strip of thinner glass ½ an inch wide and in length exactly the width of the larger strip; make, in fact, a glass dipper with a stop at each end, and a portion of the stem projecting beyond each stop. To use this holder, put on the centre of it a small piece of wet blotting-paper or linen, and press the plate on it. It will adhere well, and even if it slides, when held perpendicularly, it is caught by the stop, and by holding it di-

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* 2 Gallic acid=2 Pyrogallic acid $\rtimes$ 1 Metagallic acid $\rtimes$ 4 Carbonic acid $\rtimes$ 2 Water:—

$$2\,(C_{14}\,H_{6}\,O_{10}) = 2\,(C_{6}\,H_{3}\,O_{3}).$$
$$\rtimes\, C_{12}\,H_{4}\,O_{4} \rtimes 4\,(CO_{2}) \rtimes 2\,(HO).$$

agonally the collodion flows off the plate into the bottle without the slightest risk or difficulty. The plate being thicker than the stop, the collodion is not attracted off the edge, and every corner is covered. In developing, it is difficult to prevent the solution from running off the plate, but the space between the stop and the plate receives the liquid, and it runs off without soiling the fingers. The holder is, of course, held by that part which projects beyond the stop—the wider it is the less is the risk of the plate falling off, but greater skill is required to detach it. There is but one precaution to be observed in using it—it should be wiped after every development for fear of soiling the back of the next plate, and thus introducing pyrogallic acid into the nitrate bath.

When first I commenced, I used to rest the holder on the mouth of a wide-mouthed bottle placed in a porcelain pan, or large basin, guiding it with my left hand while pouring on the collodion, &c.; but if the hand be steady, the support soon becomes unnecessary, nor after a little practice is it requisite to have holders for every size of plate, provided that there be sufficient space for the plate between the stops.

There is another very simple description of holder, which I have seen used on the Continent for dipping plates in horizontal baths. It is merely a strip of gutta percha softened in the centre, and bent double so as to form a flat forceps or clamp, the ends of which, having been brought to an equal length, are softened in hot water, and a pencil, or piece of strong wire, is pressed between them so as to form a groove or channel close to the edge; this holds the plate firmly, while the edges of the groove keep it off the bottom of the pan.

A piece of gutta percha 16 inches long by 2½ broad and ⅛ thick will make a holder for plates 6½ inches wide.

I am, Sir, your obedient servant, N.

From the Journal Phot. Soc.

DESCRIPTION OF A PRESERVATIVE PROCESS.

BY JOHN SANG.*

[Read April 2, 1857.]

In the course of making some experiments I happened to coat two plates with a sort of light-colored molasses, called in the shops, golden syrup; on exposing and developing them, the pictures, had some promising features which made it seem worth while to test the properties of that preservative agent. In one of the plates the syrup was merely thinned with water; in the other it was bleached with chloride of lime. The two pictures were much alike in appearance, both in their good points and imperfections, so that in the further experiments I used unbleached syrup only, and I have now the pleasure of describing a method of easy manipulation and great certainty, and which is little, if anything, inferior to that of M. Taupenot in its results, without the labor which his preparation requires.

I shall first describe the process I have wrought out, and afterwards, the nature of the experiments which showed me its advantages over the usual honey method.

1. The collodion contains equal parts of absolute alcohol and ether, and to each ounce 4 grains of iodide, and ¼ grain of bromide of calcium are added.

2. Silver bath, 30 grains to the ounce of water.

3. On removing the plate from the bath, it is washed very thoroughly under a tap of rainwater; it is then slightly washed with distilled water from a washing-bottle.

4. After the distilled water ceases dropping off, a developer, consisting of 1 grain pyrogallic acid and ¾ grain tartaric acid to the ounce of water, is poured over it; the plate being still wet, a small quantity of this solution suffices to cover it equally. By inclining the plate in different ways the solution is made to run over the surface twice or thrice, and the surplus is poured off at a corner.

5. The plate is not again brought to the level, but the corner at which the solution flowed off being still held a little depressed, some preservative syrup is poured on at the upper part and allowed to run over the whole surface. The surplus of the syrup must run off at the same corner. The syrup is prepared by putting equal quantities of golden syrup and water in a vial, agitating until complete solution is effected, and filtering.

6. The end of the plate at which the solutions flowed off being still depressed, the plate is set with its face to the wall, the lower edge resting on a clean board or paper. After standing about fifteen minutes the plates may be taken up, wiped on the glass side and lower end, and put into the dark boxes where they are to be kept. I have kept none longer than nine days, but at the end of that time I have not observed the least deterioration.

7. The time of exposure is double that required for wet collodion.

8. All the pictures I have taken have been developed on the evening of the day on which they were exposed, and I am not prepared to say if that operation may be deferred longer. The plates should be laid for five minutes in a basin of rain-water and moved about a little. After the rain-water has dripped off, they should be slightly washed with distilled water, from the washing-bottle. The syrup dissolves off very readily. They are then to be developed in the usual way. If it should happen that from under exposure any of the plates show signs of becoming veiled before the sky is sufficiently black, fix them instantly with cyanide of potassium, wash, and return on the developer. The desired intensity may thus be obtained without the least risk of the shadows losing their purity.

The advantages of treating the plates with pyrogallic acid previous to the preservative syrup, are, that the sensibility and intensity are vastly increased, while the risk of veiling is diminished,

In working out this process I generally prepared the plates in sets of threes, thus:—

Without developer, coated with syrup.
With proto-sulphate of iron, "
With pyrogallic acid, " "
Three plates similar, but coated with honey.

In all the experiments, which were repeated many times, the plates coated with syrup were far cleaner and much more sensitive than when honey was used, whether plain or previously treated with iron or pyrogallic acid were in every instance the best. Having fully established this, I made a series of experiments, frequently repeated, in which the pyrogallic acid was used, alone, with acetic acid, and with tartaric acid. Those with tartaric acid uniformly gave the best pictures.

In the course of arriving at this result, I gradually discovered the causes of the imperfections which accompanied the early pictures. They are as follows, and, with the exception of the last due to the manipulation.

1. The skies and high lights full of roundish transparent spots close together, and sometimes running into one another. These are due to imperfect washing. The free nitrate should be entirely removed.

2. Small black spots at considerable and irregular intervals over the plate. Caused by the larger animaculæ in the rain-water. Removed by slight washing with distilled water.

3. Large oval or roundish spots of a dense black, chiefly about the margins of the plate. Caused by not allowing the plate to drip for a few seconds before pouring on the syrup.

4. One or more long dark streaks stretching obliquely over the plate. These, on being examined under the microscope, are found to consist of a black body interspersed with innumerable minute transparent dots. The picture appears through them, but unnaturally intense at the place. They are avoided by keeping the plate sloping in the same direction from the time the pyrogallic acid is poured on till it is ready to be placed in the dark boxes.

5. The whole plate covered with a dark shade, which, on examination with the microscope, is found to consist of very small roundish black spots. This is due to something connected with

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* Printed erroneously in our last number John Lang.

the honey used in my experiments. I never found it in the plates coated with syrup.

Some of these imperfections, especially No. 2. might not be detrimental to pictures of a large size, but my object was to make negatives for the stereoscope, and in these it is desirable to avoid the minutest flaws.

The golden syrup sold in the provision-shops sometimes contains a considerable proportion of crystallizable sugar, which will subside, but not very closely, on allowing the syrup to stand for a few days in a tall jar. It is better however to procure the article from a full or recently tapped cask, from which it can be got perfectly pure.

Mr. Malone.—I am sure we are all obliged to Mr. Sang, for his preservative process, and perhaps I may be allowed to make a few remarks upon that subject, I have for a long time been trying to find a deliquescent substance suited to the purposes of photography, and my experiments date from those of Messrs. Spiller and Crookes. In fact, when Mr. Spiller mentioned to me what he intended to publish, I at once suggested another class of deliquescent bodies; I mentioned that a deliquescent sugar would be desirable. Now honey and tracle consist of a mixture of various bodies, and they are both generally impure; moreover, by treating honey with alcohol, about 25 per cent. of good grape sugar may be got out; this sugar, when pure, is not deliquescent, as some think; and therefore honey, which contains it largely, may, apart from its impurities, not be the most desirable substance for our purpose. For certain reasons it struck me that if we took cane-sugar, which we can always get of a definite kind, and even pure and crystallized, we might act upon it by heat or chemically, and obtain a substance uniformly deliquescent. I accordingly made experiments with cane-sugar, melting it in a glass vessel, and heating it to a temperature of about 250° Fahr. and even higher, and I found it underwent a modification, which made it, as I anticipated, perfectly deliquescent. A bead of this melted sugar, left on the table all night, became a mass of syrup, and I believe that sugar so treated has lost all power of returning to the crystalline state again. It is known that acids have the property of rendering sugar-cane uncrystallizable, and it is probable that sugar treated with diluted nitric acid may yield a substance which is at once a preservative and an accelerating agent. I intend to pursue these facts to a practical end.

From the Liverpool Photographic Journal.

PRESERVATIVE COLLODION PROCESS.

To the Editor of the Liverpool Photographic Journal.

Sir,—In reply to the inquiries of Mr. Elliott, I have to say that the nitrate bath I use is in a very slight degree acid; and that I used collodion made in accordance with the formula which was given in "Notes and Queries" about three months ago, by Dr. Diamond, and which I find sufficiently negative for out-of-door practice, more especially in the process I was so fortunate as to discover; and for positives I know of none superior. I should suppose that any of the collodions generally used would answer equally well; but of this, of course, I cannot speak positively. As regards the dryness of the plates, treated in the way I treat them, I find that they are, at the expiration of a week, in the slightest degree adhesive, or perhaps sticky is the proper word, and to this, I conclude, is to be attributed their retaining sensitiveness so thoroughly, for even after a fortnight I find they are as sensitive as collodion used fresh. It is right to add that at the end of a fortnight crystallization has commenced on the surface, and they are thus rendered unfit for photographic purposes, although perfectly sensitive; but as a week seems long enough to me I do not care much about the matter. What particular advantage can accrue from the plates being absolutely dry, I am at a loss to know, as surely they are not to be handled, or subjected to any other rude treatment. I consider, that having found they will retain perfect sensitiveness, sufficient dryness for any requisite purpose, and that there is not any risk of failure, nothing better is required; and I believe that it will prove a very valuble acquisition to photography.

I would wish to add, that I think it safer when first beginning the development, not to add more than two drops of silver to one-third of an ounce of the pyrogallic, as if much exposed discoloration of the picture might probably ensue; and after the positive is well out, to add five or six drops more of the silver to strengthen the negative. And I have found that five minutes' exposure produces a positive, and seven minutes a good negative, in sunny weather.

I last week took out seven plates, and every one turned out excellent, a circumstance never attending any other preservative process in my hands. And where distilled water is obliged to be used, it may be worth knowing that the same dish of water will serve for many plates—a dozen, without any ill consequences; and as after being in the dish they are well washed, the sugar does not become in any way deteriorated. I nevertheless occasionally filter the solution, so as to be quite sure.

Trusting I have given the information desired by Mr. Elliott.

I am, Sir, your obedient servant,

T. L. Merritt.

From the Jour. of the Phot. Soc.

THE COLLODION PROCESS.

BY THOMAS RODGER, ST. ANDREWS.

[Read March 10, 1857.]

The cotton, or pyroxyline, I prepare in the same manner as I formerly described in a paper written for the Royal Scottish Society of Arts in Feb. 1854. Thus, take 11 ounces of nitrate of potash (the powdered nitre of commerce I invariably use), and dry it thoroughly in a tin shovel, or on a piece of slate over a jet of gas, or a stove; then, after pounding it as fine as possible in a mortar, put it into a tolerably large bowl, and pour upon it 20 ozs., by weight, of commercial sulphuric acid (I have found the density of this acid to vary so very little that it may generally be relied on); stir the mixture with a glass rod till it presents a creamy appearance. Then put in, pellet after pellet, fine cotton (making use of two glass rods to mix all thoroughly), until the mixture is nearly absorbed by the cotton.

The quantity of cotton required will be found to be as nearly as possible $\frac{1}{2}$ an oz. It is well to bear in mind that the cotton must be most thoroughly charged with the mixture, otherwise the change would only be partial. Allow the action to go on for at least twelve minutes, separating the fibres of the cotton with the rods two or three times during the process. The action should now be checked by plunging the contents of the bowl into a large vessel of water, which (after the now soluble cotton has been opened up by the glass rod to permit the solution of the bisulphate of potash) should be speedily poured off, and fresh water added. It should now be so thoroughly washed, that not the slightest trace of acid can be detected. I have frequently used pure rain-water to finish with; because, besides exerting a highly solvent power upon any salts which may be present in ordinary water, and which consequently would be left in the cotton, it will neutralize every trace of acid remaining in the cotton—since very generally a small amount of ammonia exists in rain-water. At any rate no harm can accrue to the pyroxyline, as any trace of free ammonia will be dissipated in the drying.

The pyroxyline is now to be dried at a very low temperature; and when thoroughly dry, stored away in a wide-mouthed bottle. I prefer the above method to that by nitro-sulphuric acid although the latter is much more easily managed when acids of the proper strength are at hand: but these are not readily obtainable. I have failed repeatedly by the latter method, but never by the former. I will now describe the preparation of the collodion I employ, which I beg to say is, from the proportions in my formula, adapted for negatives only. The most suitable mixture for direct positives on glass I must pass over, as I have had almost no acquintance with this part of the process.

Take of

Sulphuric ether (from methylated sp.)	8	16 ozs.
Pure sulphuric ether	8	
Spirits of wine (64 o. p.)		2 ozs.
Soluble cotton (quite dry)		104 grs.

Then take— solve

Iodide of cadmium	48 grs.
Iodide of potasium	30 grs.
Bromide of cadmium	25 grs.

Rub the three salts smartly in a mortar, until a pasty-like compound is formed; then put in 4 ozs. of 64 o. p. spirit (it is as well to reserve a few drachms of this quantity of spirit for washing the mortar), and it will, with a little use of the pestle, almost entirely dissolve. Now let the solution settle for a short time, and afterwards mix the whole of it with the solution of pyroxyline, and mix well. When the collodion (which is now complete) has been allowed to become quite clear by subsidation, its quality may be tested. It is so difficult to obtain ether or spirit of regular strength, that it will sometimes be requisite to diminish a little the amount of spirit recommended. It is very requisite to use the spirit at as nearly as possible the strength of 64 o. p., if it be any weaker, the quantity given in the formula could not be added without making the collodion thick and glutinous.

Collodion made as above, I have found to be extremely free from any tendency to change. After the first week, I may say I have never observed it become deteriorated, through in my possession for very long periods. I make a point of keeping the stock on an old wine-cellar shelf-where all is dark. A 16-oz. bottle can be kept always full in the operating closet.

Specimens of collodion, which are very old, are inclined to give somewhat tender films: I do not know of any remedy for this, except to add to the old collodion a little pyroxyline along with a little sulphuric ether. Chloroform has been often recommended as a suitable corrective for this change which the dissolved pyroxyline is liable to undergo, but it does not always prove useful. It will often be found a very good thing to mix, in various proportions, any collodion which has become unfit for use, with what may be newly prepared.

I am especially careful to have my glass plates thorougly clean. The system of cleaning which I have adhered to from the first, and which has never annoyed me by one example of a chemically unclean plate, is as simple as can be, and may be entrusted to any one, excepting in the last stage. Before using the glass for the first time, I wash it at a tap, using a piece of flannel, dipped now and then in nitric acid; then, having always at hand in a dish a quantity of prepared chalk, or fine whiting made into a sort of paste with water, I take a piece of cloth and with it apply the mixture to both sides of the glass. I then set aside the plates to dry, and afterwards, with a large piece of washed cotton cloth, rub off the chalk from their surfaces. I then store them away in packets of a dozen or so; when plates which have been used to be cleaned, I make a pratice of soaking them in a shallow tub or earthenware foot-bath containing a strong solution of potash. In a short time the film becomes easily detachable; with a piece of cloth rub off the film, and wash freely at a tap as before, and apply the chalk in the manner already described. When a plate is required for a picture, I take one from a packet, and with an old soft cotton napkin (perfectly clean, and kept strictly for this purpose), rub the plate well on both sides, and then with a piece of soft chamois skin (which has been well washed in warm water, without soda or soap), I give a final smart polish to the surface intended to receive the collodion, and proceed to coat the plate immediately. I never touch either surface of the glass with my fingers, even when free from photographic chemicals; and am especially careful always to wash them after handling any material used in develping mixtures, or other substances likely to produce stains by being imparted to the glass by the cloths. I always roughen about one-eighth of an inch in depth round the edges of plates which are to be used for pictures which require a long time for developing. This counteracts any tendency in the film to rise. The kind of glass which I use for my negatives is good flattened crown; also a kind commonly called picture sheet.

(*To be continued.*)

From the Jour. of the Phot. Soc.

PRINTING STEREOSCOPIC TRANSPARENCIES.

Bacup, Wheatley College, February 22, 1857.

To the Editor of the Photographic Journal.

Sir,—A query in your January Number "on the printing of Stereoscopic Transparencies" and a request from yourself for communications on the subject, have led me to present the following remarks to the attention of your numerous readers. I am not aware whether they are altogether novel or not, but having been for the last eighteen months engaged in experiments on the best means of transferring the collodion films to paper, the subject of collodion printing has naturally engaged my attention, as a ready and simple mode of multiplying photograpic impressions.

In printing upon collodion I take the wet plate out of the bath immediately, lay it upon a blackened surface, and cover the surface with prepared film of gutta-percha, or transparent paper, taking care that no air-bubbles are entangled between the two films; the negative is then placed directly upon the whole, an impression taken, and after the removal of the negative and gutta-percha film, the picture is developed with the ordinary iron positive developer.

To obtain the gutta-percha film, a solution of the gum in benzol may be poured upon a clean glass plate, and when dry removed by immersion in water; or a film of collodion may be previously deposited upon the glass plate, and after the coating is dry, varnished with turpentine mastic varnish; or the mastic varnish may be mixed in the proportion of $\frac{1}{3}$ to $\frac{2}{3}$ of the gutta-percha solution. The addition of the mastic varnish renders the film firmer, less liable to curl up by the warmth of the hand, and more transparent.

The prepared gutta-percha film is liable to become spotted, by being in contact with the silver solution, but the spots may be removed by washing with cyanide of potassium. When the film has been once used and is required again before it has become dry, the nitrate solution will be found to have gathered concentrated drops, and if a print is taken without a previous washing of the film in water, dark spots will mar the appearance of the impression; in this case, it is requisite to be careful, when laying the film upon the collodion surface, to raise and depress it several times, so as to allow the concentrated drops on the film to become equally diffused with the solution on the collodion surface.

I have used the iron developer of various strengths, from the most dilute to the most concentrated, with and without acids and alcohol; also pyrogallic and formic acids. When the deposit has been thrown down rapidly and there is but little intensity in the picture, I strengthen with bichloride of mercury, not allowing the solution to remain sufficiently long to whiten the whole image.

The genaral mode of procedure is only indicated above as the modifications are infinite, but the results are in many cases superior to any I have yet seen in the ordinary paper printing processes.

I have usually transferred the impressions obtained to white paper by means of a solution of bleached shell-lac in borax, but in this case the pyrogallic acid must not be used as a negative developer. Recent experiments however lead me to hope that I shall shortly be able to use the ordinary crystal varnish in transferring collodion prints.

If you should think the above of sufficient importance to be admitted into your Journal, I shall be happy to answer any future queries to the best of my ability.

I am, sir, yours &c.,

J. H. Worrall.

From the Jour. of the phot. Soc.

PORTABLE TENT FOR OUTDOOR WORK.

Palais Jarni, 2 Alt Markt, Dresden, Nov. 28th, 1856.

To the Editor of the Photographic Journal:

Sir,—I now send you an account of the tent I have invented for photographic purposes. I believe it will weigh about ten pounds, perhaps with the shot eleven pounds; it is 7 feet high, by 4½ feet in diameter. It is made of black calico, lined with yellow. At the bottom is a loose black curtain 1 foot deep, which is to lie on the ground and help to exclude the light. Into the interior of the tent are sewn four india-rubber air tubes, sufficiently large, when inflated, to keep the calico fixed in a circular form. These four air-tubes are connected by eight smaller ones, so that on the application of a small india-rubber bellows to a nozzle fitted on the second air-tube, the whole four tubes are simultaneously inflated. This operation having been performed, the photographer takes the cord which is attached to the ring at the top of the tent (at the end of which cord is a bullet), and throws the bullet over any branch of a tree which he may have previously selected as being convenient for his intended operations. He then draws the cord over the branch until he has raised the tent to its proper height, and fastens it round a tent-peg previously driven into the ground. The tent being thus simply erected, I will now explain the means of ingress and egress, which are equally simple: a number of small brass rings are sewn into the interior of the tent in rows extending from the top to the bottom; these rows being eight in number, and placed at an equal distance from each other. Through each of these rows a small cord passes, which is to be made fast at the bottom of the tent. At the top of the tent these eight cords unite, and after passing through a ring similar to that on the top, are formed into one cord, by drawing which the photographer raises his tent in folds from the ground exactly as if it were a Venetian blind. The photographer having raised the tent to a sufficient height, fastens the cord to a tent-peg driven into the ground in the interior, and proceeds to take the picture. During his absence the tent gets thoroughly cool and filled with fresh air and on his return to develope the picture he lets it down over him again until the work is done. When the tent is required to be taken down, the nozzle is unscrewed, the air immediately escapes, the tent collapses, the bullet is thrown back again over the branch of the tree, and the whole will now go into a small carpet bag. It seems to me that this tent is lighter than others, simple in action, and, from its having no doors, will effectually exclude all the light but that which is allowed to enter through the yellow window. If it is found to be an improvement on those hitherto in use, I shall feel gratified at having done something, however small, for practical photography.

Believe, me, faithfully yours.

Henry Fitzgerald.

From the London Times.

PHOTOGRAPHS AT THE CRYSTAL PALACE.

A numerous collection of photographs, chiefly by French artists, is now exhibited at the Sydenham Palace: names of the highest rank will be found in the list. MM. Bisson Frerès, who are considered the greatest publishers of Paris, are represented by several fine specimens, chiefly on architectural subjects. A large view of Paris from the *quai du Louvre,* and various views of the *Palais Royal, Place dela Concorde,* &c., but may be regarded as types of their class; but they have likewise contributed four unusually large photographs of the glaciers of Switzerland. M. Baldus, of Paris, though less prolific than the MM. Bisson, is nearly their equal in rank, indeed their three large views of the new pavilions of the *Louvre* are without precedent for brightness, distinctness, depth of color, and absence of distortion. Some of the smaller works, one representing the havoc made by the recent inundations, were exhibited at the late photographic exhibition at Brussels. So highly are the merits of M. Baldus esteemed in France, that he is at present occupied on a work that will number 1000 subjects, being the entire detail of the new additions to the *Louvre*, with every ornament of sculpture, moulding, or construction. M. Blanchere, of Paris, is represented by several copies of French pictures, and some landscape studies on the banks of the Loire; M. M. Perrin and St. Marc by their views on the Rhine; M. Duboscq by gems and microscopic objects photographed by the use of the photo-electric microscope; M. Delessort, by his reproductions of the rare engravings of Marc Antonio; Count Olympe Aguado, by his studies of the trees at Fontainebleau; M. Le Secq, by his photographs after modern pictures of the French school; M. Le Gray, by his well known cloud studies, and his marvellous reproductions of the "*Joconde*" of *Leonardo du Vinci*, and a portrait by Raffaelle, and several other works; Mr. Maxwell Lyte, by his passes in the Pyrenees, &c. Some views of the remarkable antiquities and edifices of Rome have been contributed by Cardinal Wiseman. The English photographers are likewise represented, and the collection will be much increased after the close of the present month, when a large number of the works now exhibiting in Paris will be transferred to the Sydenham Palace. Contributions are likewise promised from Dresden, Munich, Milan, Florence, and Venice. In the same room with the photographs is an object of singular historical interest, namely, the celebrated Waterloo medal of *Pistrucci*, struck from the original die, which has never been hardened. That the subject consists of the four allied sovereigns, surrounded by figures representing the mythological war of the giants, is generally known; but as, from various circumstances, impressions of the die have been rarely taken, few persons have seen this exquisite work of art.

From the Liverpool Photographic Journal

SALTING PAPER FOR CALOTYPES.

In my experience of photography, I generally find the simplest methods of doing things to be the best. In salting paper for calotypes, some recommend one kind of salt and some another. I have tried them all; but for a long time back I have used nothing but *pure sea water*, by which method I never fail in getting good results, with brilliant whites and a rich purple black color. Great care must be taken in the choice of the vessel to contain the salt water, as, if iron or tin is used for that purpose, it will be found to spoil it completely. I have generally found a common earthenware to be the best thing for holding it, and I always use it in a porcelain bath.—I am, sir, yours respectfully,

J. Ralston.

From the Jour. of the Phot. Soc.

OXYMEL PROCESS.

To the Editor of the Photographic Journal:

Yarmouth, Feb. 16, 1857.

Sir,—In developing pictures by the oxymel process, I find that much cleaner pictures are obtained by limiting the amount of nitrate of silver at first to not more than from 3 drops to 2 drachms of the pyrogallic solution; when using more than this, I have generally found the result unsatisfactory, from the plates fogging. Having had much experience in photography I have ventured to give this hint.

I am, sir, your obedient servant, J. P.

Palmer's Patent Enlarging Camera.—A gentleman of the name of Palmer has long been engaged upon the construction of an instrument to permit the copying of any object, or series of objects, upon either a larger or smaller scale than the original, in which he has at length succeeded in the most perfect and satisfactory manner.—*London Art-Journal.*

Personal & Art Intelligence.

— The time since the issue of our last number has been so short, that we could not expect to hear from any of our subscribers on the subject of our plan for a Photographic Society; but we hope we shall do so by our next issue. It is a plan which we think can be made eminently useful, and we should like to see the endeavor made to put it in practice. The manner of doing so we wish to leave to photographers themselves.

— It is with sincere regret that we hear of the death of that eminent photographer, F. Scott Archer, Esq. The rapid and vast spread of photography over the whole world during the last five years is exclusively due to him. Until his invention of the *Collodion Process*, photography can be said to have been at a stand. To that process photography owes its present position in the arts; to it every practitioner owes his living. The photographic artists of the world can never repay the great services thus rendered to them by Mr. Archer; who, unlike our own copyists, freely gave to the world an invention which has enriched many, and which would have enriched him had he pursued the usual course of inventors and patented it. The disinterested and noble-hearted man is now no more. How many of those who are indebted to him for all they possess, have given even a thought to him? None. Even our late appeal that a portion of the testimonial to be presented to him by the photographers of England be contributed by American photographers, has been utterly disregarded. It is a shame upon the Art in America. What has been denied to the man while living, we hope to see accorded to his memory now that he is dead, for the honor of our country. We see that a fund is being raised in Europe to be presented to his family as a testimonial of respect and esteem for the noble character of the man, and as a token of appreciation of the great services he has rendered the Photographic Art. We do sincerely hope that *our subscribers* at least will contribute to this fund. We have no doubt Mr. Anthony will consent to receive and transmit such sums as may be contributed in this country.

— Mr. Wenderoth has sent us three specimens of the new style of photograph described in his last letter to us. They are the best representations of engravings on steel that we have seen executed by the photographic Art. The details are remarkably fine and correct to nature, and we think our friend Letts was misinformed in regard to their analogy to his Atrephograph. There is as wide a difference as can possibly exist. The delicacy of detail and roundness of the figures is undoubtedly owing to the perfection of the negative. They are not transfers.

— We have received a long and interesting letter from M. A. Root, Esq.; the first we have received since the terrible accident by which he received the severe injuries which have laid him on a bed of suffering since the 8th of December last. Although sufficiently recovered to admit of his removal to his home in Philadelphia, he is still obliged to keep his bed, and can only write with a pencil while in a reclining position. It will undoubtedly be as gratifying to our readers as to ourselves, to learn of his convalescence, and again to see his name in our columns as a contributor. It is with sincere feelings that we wish him a speedy return to health, and his place of usefulness in the photographic art.

— Mr. J. J. Bardwell of Michigan, has sent us several very good proofs taken by the dry honey process, the formulæ for which he also sends us, and which will be found in the present number. The great difficulties—sharpness of definition and clearness—which the honey process presents are in a great measure overcome by this formulæ, and we think Mr. Bardwell is pursuing the right course to bring the process to perfection.

— Mr. McDonald of Fort Wayne, Ind., is thus spoken of in the papers of that town. We have given our own opinions of his work in a former issue, which we are glad to see corroborated:

"It is surprising to witness the perfection to which our friend McDonald has brought the Photographic Art. We have seen a portrait of Mr. Starkweather, our lately County Auditor, taken after his death, by Mr. McDonald, in which the eyes and other features, are as perfect and the whole picture as natural and lifelike as if it had been taken during life. There are few artists who so thoroughly understand their profession as Mac, and none who take better pictures.

— In laying the corner stone of Holy Trinity Church (Episcopalian) on Rittenhouse Square, Philadelphia, on the 25th of May 1857, besides the usual deposit of newspapers, coins, &c., in the corner-stone, several photographic copies by C. Guillou, of the original drawings of the edifice (by the well-known architect J. Notmann) were also enclosed in the soldered copper box. They were printed upon paper prepared by different processes—each process being endorsed upon the print. If in the course of a century or two this corner-stone should be opened, the photographers of the day will have a jolly time over the antiquated processes of 1857—particularly in noticing the differences between prints "well-washed" and those which are but "lightly washed." This suggestion should be carried out, and for the future let all corner stones contain one or more photographs.

— Our old friend George Adams receives the mede of praise so justly his due in the following extract, which we take from the *Davenport* (Iowa) *Gazette*. Those who are acquainted with his skill in the Daguerreotype, will not doubt his ability as a photographer. Our *Journal* could not be better illustrated, we feel confident, than by his hand:

Mr. Adams, the Photographist.—This gentleman has permanently located in Davenport. We find the following complimentary notice of Mr. Adams in the Keokuk Post. It was written by the associate editor, Oliver I. Taylor, Esq., who, coming from the same city where Mr. A. formerly resided, Wheeling, Va., speaks from his personal knowledge of the artist and his works.

An Artist.—We are surprised and gratified to learn that Mr. George Adams, the distinguished and successful Daguerrean and Photographic Artist has located at Davenport in this State—surprised that he relinquished his splendid business in the East, and gratified to learn that he is already doing well, and has brilliant prospects before him in his new location. Mr. Adams, however, always had a *penchant* for the "West," and we hope he has found a good field for the exercise of his talents and enterprising spirit.

We have had every opportunity of knowing Mr. A.'s abilities as an artist, and we can safely say that, in his peculiar line—that of Daguerreotypes and Ambrotypes, with all the modifications and improvements combined in beautifully colored Photographs and soft and delicately tinted Stereoscopes—he has few equals in the United States. We have had one of his pictures in our possession for nearly a year, during which time we had frequent occasion to compare it with the works of others, both East and West, and we have never yet seen any picture which surpassed this admirable specimen of Mr. A.'s skill. In most cases it was superior to the "crack" work of New York, Philadelphia, and Cincinnati. Mr. A. is not a mere mechanical imitator; he is a scientific operator and inventor, and has withal an artistic judgment and taste which authorizes us in calling him, according to the proper meaning of the term an Artist. We wish Mr. Adams success. The citizens of Davenport can congratulate themselves on having in their midst one of the first artists of our extensive country.

— M. Fitzgibbon of St. Louis, Mo., is in our Eastern States exhibiting a photographic diorama of Kansas scenery, and the events which have occurred there recently. His success has been commensurate with his enterprise.

— Mr. J. Gurney is travelling in the South and Southwest.

— We clip the following from the *Chicago Democratic Press*:

Fine Pictures.—Remember, this is the day to visit Fasset & Cook's Fine Art Gallery. Observe how perfect the likenesses, compared with the originals. They have 20 or 25 photographs partly finished for citizens of Galena and Chicago, ranging in price from $25 to $75, some of which will be completed in a week or ten days. Fasset & Cook are justly eminent in this country as photographers. Their Imperial Photographs equal the finest steel engravings. Rooms No. 131 Lake street.

From the London Art-Journal.

TALK OF PICTURES AND THE PAINTERS.*

BY AN OLD TRAVELLER.

CHAPTER V.

Confession of Von der Hagen—Forgotten jewels—Giovanni Bellino and Vittore Carpaccio—Santa Maria della Salute—Tintoretto's "Marriage in Cana"—Church of San Cassano—Crucifixion in the chancel—Santa Maria dell' Orto—Last Judgment—The Academy—"The Miracle of St. Mark"—Death of Abel—The Ducal Palace—Il Paradiso—Shortcomings of the Master—The Critic not partial—Hands held up for Mercy—Wait awhile—Scuola di San Rocco—Adoration of the Magi—Domenico and Marietta Robusti.

Useful and even valuable, for many purposes, are the works of Von der Hagen; nor is it altogether in reprobation of the excellent author that the following confession is related;—nay, rather, I would have you admire, with me, the useful warning to his reader, as well as credit to himself resulting from the candor of his announcement. He has been visiting the churches of Venice—that of Ill Redentore, of Santa Maria della Salute, and of San Giorgio Maggiore, among them—and he says, "There are many great and important pictures in these churches; works by Paolo Veronese, Tintoretto, and other great masters, *but I have forgotten them all.*"†

A most "lame and impotent conclusion," without doubt, and one for which the reader is so little prepared, that his first sensation, on reading it, is one of disappointment and displeasure. But a moment of consideration induces him to forgive the fruitful companion, who, if then deserting his side for an instant, has, on other occasions, served him well; wherefore, accepting the frank declaration as merely intimating that he must, for that time, seek assistance elsewhere, he shakes hands again with the culprit, and restores him to that fair place in his favor, which had, for the moment, been forfeited.

Yet must you love him well before you concede so much, for do but see what it is that he has "ganz vergessen!" Omitting works of Giovanni Bellino, Vittore Carpaccio, and other truly admirable masters, whose works are all to be found among these "forgotten pictures," I will but mention some few of those by Tintoretto—his "Martyrdom of St. Stephen," namely, described in our last chapter,‡ "The Gathering of the Manna," and others, all in the Church of San Giorgio Maggiore, with the "Marriage in Cana," in that of Santa Maria della Salute, where is, or then was, a St. Mark, with SS. Cosimo and Damiano, by Titian, other works by the last-named master being also among "the forgotten" of our culpable friend Von der Hagen.

We, too, if not forgetting, must at least be silent respecting the greater part of these pictures; we can find place for the mention of one only—Tintoretto's "Marriage in Cana," in the sacristy of Santa Maria della Salute.

"No genuine work of Art ever was or ever can be produced, but for its own sake: if the artist do not conceive to please himself, he never will finish to please the world." So thinks Fuseli,§ and he is right; the picture before us is one of the many that might be adduced to show what results when the artist *does* work "to please himself," and that he has done so in this instance there is abundant evidence throughout. Few pictures received the signature of Tintoretto—three, or at most four of all his many productions, are thus distinguished—"The Crucifixion," in the Scuola di San Rocco," is one—this "Marriage in Cana" is another—; it bears the name of the noble master, and well does it merit the honor; numerous as are the excellences attributed, by common consent of every good authority, to the works of Tintoretto, in this you shall find all exemplified. That grandeur of design wherein he had reverently, and yet confidently followed where Michael Angelo alone could lead the way; that knowledge of form, "that brilliancy of imagination, that freedom of execution and beauty in his tones of color," accorded to him even by a writer but little addicted to indiscriminate praise, and ever keeping an impartial eye on the defects no less than on the beauties of his subject,‖—all are to be found in the picture before us. "It is not often that the works of this mighty master conform themselves to any of the rules acted upon by ordinary painters," remarks another authority; "but, in this instance, the popular laws have been observed, and an academy student would be delighted to see with what severity the principal light is arranged in a central mass, which is divided and made more brilliant by a vigorous piece of shadow, thrust into the midst of it, and which dies away in lesser fragments, and sparkling towards the extremities of the picture. This mass of light is as interesting by its composition as its intensity. . . . .

"The table is set in a spacious chamber, of which the windows at the end let in the light from the horizon, and those in the side-wall the intense blue of an eastern sky. The spectator looks all along the table, at the farther end of which are seated Christ and the Madonna, the marriage guests on each side of it,—on one side men, on the other women; the men are set with their backs to the light, which, passing over their heads, and glancing slightly on the table-cloth, falls in full length along the line of young Venetian women, who thus fill the whole centre of the picture with one broad sunbeam made up of fair faces and golden hair. Close to the spectator a woman has risen in amazement, and stretches across the table to show the wine in her cup to those opposite; her dark red dress intercepts and enhances the mass of gathered light." The writer has previously remarked that, "there are assuredly no female heads in any of his (Tintoretto's) pictures in Venice elaborated so far as those which here form the central light." He calls attention to the fact that neither bride nor bridegroom are unmistakeably to be distinguished, but considers that "the fourth figure from the Madonna, in the line of women, who wears a white head-dress of lace and rich chains of pearls in her hair, may well be accepted for the bride." . . . . "Be this as it may, the fourth female face is the most beautiful, as far as I recollect, that occurs in the works of the painter, with the exception only of the Madonna in the 'Flight into Egypt.' It is an ideal which occurs indeed elsewhere in many of his works—a face at once dark and delicate, the Italian cast of features moulded with the softness and childishness of English beauty some half a century ago; but I have never seen the ideal so completely worked out by the master. The fancy may best be described as one of the softest and purest of Stothard's conceptions, executed with all the strength of Tintoret. The other women are all made inferior to this one, but there are beautiful profiles and bendings of breasts and necks along the whole line. The men are all subordinate, though there are interesting portraits among them; perhaps the only fault of the picture being that the faces are a little too conspicuous, seen like balls of light among the crowd of minor figures which fill the background of the picture. The tone of the whole is sober and majestic in the highest degree; the dresses are all broad masses of color, and the only parts of the picture which lay claim to the expression of wealth and splendor are the head-dresses of the women. In this respect the conception differs widely from that of Veronese, and approaches more nearly to the probable truth. Still the marriage is not an unimportant one; an immense crowd, filling the background, forming superbly rich mosaic of color against the distant sky. Taken as a whole, the picture is perhaps the most perfect example which human Art has produced of the utmost possible force and sharpness of shadow, united with richness of local color. In all the other works of Tintoret, and much more other colorists, either the light and shade, or the local color, is predominant; in the one case, the picture has a tendency to look as if painted by candle-light, in the other it becomes daringly coventional, and approaches the conditions of glass-painting. This picture unites color as rich as Titian's, with light and shade as forcible as Rembrandt, and far more decisive."[*]

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* Continued from page 133, vol. x. no. vi.

† See "Briefe in did Heimath," Zweiter Band, s. 152.

‡ See *Photographic & Fine Art Journal* for April.

§ See his "Life and Works," vol. iii., Lecture xii., p. 54.

‖ Phillips—See "Lectures on the History and Principles of Painting." London, 1833.

After reading the above, you will be glad to know that the next to follow, a Crucifixion in the Church of San Cassano, will be treated by the same hand. "It is among the finest in Europe," says the authority we quote, "and is one of the three by Tintoret, all in the Church of San Cassano, a building not otherwise remarkable." After expressing his satisfaction at the care with which this picture has been preserved to us, declaring it to be "in a better state than most pictures in galleries," and remarking that the light, though not bright, permits all such parts as are seen at all to be seen well, the writer, having mentioned "the new and strange treatment of the subject," proceeds to say, "It seems to have been painted more for the artist's own delight,"—what a promise is in those words! nor is any part of their import unfulfilled,—"for the artist's own delight, than with any labored attempt at composition: the horizon is so low that the spectator must fancy himself lying at full length on the grass, or rather among the brambles and luxuriant weeds, of which the foreground is entirely composed; among these the seamless robe of Christ has fallen at the foot of the cross, the rambling briars and wild grasses thrown here and there over its folds of rich but pale crimson. Behind them, and seen through them, the heads of a troop of Roman soldiers are raised against the sky; and above these, their spears and halberds form a thin forest against the horizontal clouds. The three crosses are put on the extreme right of the picture, and its centre is occupied by the executioners, one of whom, standing on a ladder, receives from the other at once the sponge and the tablet with the letters I. N. R. I. The Madonna and St. John are on the extreme left,—superbly painted, like all the rest, but quite subordinate. In fact, the whole mind of the painter seems to have been set upon making the principals accessory, and the accessories principal. We look first at the grass, and then at the scarlet robe, and then at the clump of spears, and then at the sky, and last of all at the cross. As a piece of color, the picture is notable for its extreme modesty. There is not a single very full or bright tint in any part, and yet the color is delighted in throughout; not the slightest touch of it but is delicious. It is worth notice also, and especially, because this picture being in a fresh state we are sure of our fact, that like nearly all other great colorists, Tintoret was afraid of light-green in his vegetation. He often uses dark-blue greens in his shadowed trees, but here, where the grass is in full light, it is all painted with various hues or sober-brown, more especially where it crosses the crimson robe. The handling of the whole is in his noblest manner, and I consider the picture generally quite beyond all price."[†]

Very powerful is the temptation here to repeat what our author has remarked of the "Massacre of the Innocents," and the "Flight into Egypt," and greatly will he profit who shall turn to that passage which we mark for his guidance;[‡] but our space would fail us: we are the slaves of "Circumstances," so well called that "unspiritual god," and must remain within the narrow limits prescribed. Of "The Last Judgment," the poor remains of which are in the Church of Santa Maria dell' Orto, our author, after alluding to the treatment of the same subject by Giotto, Orcagna, Fra Angelico, and other masters, proceeds to say:—"By Tintoret only has this unimaginable event been grappled with in its verity; not typically nor symbolically, but as they may see it who shall not sleep, but be changed. Only one traditional circumstance he has received, with Dante and Michael Angelo—the boat of the condemned; but the impetuosity of his mind bursts out even in the adoption of this image; he has not stopped at the scowling ferryman of the one, nor at the sweeping blow and demon dragging of the other, but, seized, Hylas-like, by the limbs, and tearing up the earth in his agony, the victim is dashed into his destruction; nor is it the sluggish Lethe, nor the fiery lake that bears the cursed vessel, but the oceans of the earth, and the waters of the firmament gathered into one white ghastly cataract; the river of the wrath of God, roaring down into the gulf where the world has melted with its fervent heat, choked with the ruins of nations, and the limbs of its corpses tossed out of its whirling, like water-wheels. Bat-like, out of the holes, and caverns, and shadows of the earth, the bones gather, and the clay-heaps heave, rattling and adhering into half-kneaded anatomies, that crawl, and startle, and struggle up among the putrid weeds, with the clay clinging to their clothes, and their heavy eyes, sealed by the earth darkness, yet, like his of old who went his way, unseeing, to the Siloam Pool, shaking off, one by one, the dreams of the prison-house, hardly hearing the clanguor of the trumpets of the armies of God; blinded yet more, as they awake, by the white light of the new heaven, until the great vortex of the four winds bears up their bodies to the judgment-seat: the Firmament is all full of them—a very dust of human souls, that drifts, and floats, and falls into the interminable, inevitable light; the bright clouds are darkened with them as with thick snow, currents of atom-life in the arteries of heaven, now soaring up slowly, and higher and higher still, till the eye and the thought can follow no further, borne up, wingless, by their inward faith, and by the angel powers invisible, now hurled in countless drifts of horror before the breath of their condemnation."[§]

Now, if there be any one of our students who has not read these suggestive descriptions in the pages of the author, he will feel obliged to the present transcriber—for that it is in those words, and not in any less instructive and thought-inspiring, that our account of the lost treasure in question is given. Lost, because unhappily the picture is so cruelly injured that "unless the traveller be one accustomed to decipher the thoughts in a picture patiently, he need not hope to derive any pleasure from it." "Yet no pictures," says our author in another place, where "the Worship of the Golden Calf," is joined in his lamentation over the neglect suffered by the paintings in the Church of Sta. Maria dell' Orto, "no pictures will better reward a resolute study." And this is true, without doubt, of the one picture as of the other; but in respect to the "Golden Calf," the present writer, discouraged by a first attempt, did not make a second, and was impressed chiefly by the conviction that the dampness of the place must eventually destroy that painting utterly! There is a "Martyrdom of St. Agnes," with a "Presentation of the Virgin in the Temple," also in this church; the latter, as our author informs us, has recently suffered renovation.[||]

In the Academy of the Fine Arts (Accademia delle Belle Arti) is the renowned "Miracle of St, Mark," painted, as were others from the life and works of that saint, for the Scuola di San Marco, and described by Vasari as follows:—"Nella Scuola di San Marco da San Giovanni e Polo, sono quattro storie grandi, in una delle quali è San Marco, che, apparendo in aria, libera un suo divoto da molti tormenti che se gli veggiono apparecchiati con diversi ferri da tormentare, i quali rompendosi, non gli potè mai adoperare il manigoldo contra quel divoto; ed in questa è gran copia di figure, di scorti, d'armadure, casamenti, ritratti, ed altre cose simili, che rendono molto ornata quell' opera."[¶]

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[*] Stones of Venice, vol. iii. p, 354, *et seq.*

[†] Ruskin *ut supra*, p. 289, et seq.

[‡] Modern Painters, vol. ii., part iii., sec. ii., pp. 172, 173.

[§] Modern Painters, vol. ii. pp. 174, 175.

[||] See "Modern Painters," vol. ii. pp. 173–175; see also "Stones of Venice," vol. iii., pp. 317, 318.

[¶] See "Opere di Giorgio Vasari," Ed. Flor. 1823, vol. iv. p. 467. The version following is taken from Mrs. Foster's "Translation of Vasari's Works:—"In the Scuola of St. Mark, near the Church of SS. Giovanni e Paolo, are four large pictures by Tintoretto; the first exhibits St. Mark appearing in the air, and delivering a man who was votary from grievous torments, which an executioner is preparing for him, but the irons

A picture representing Cain slaying his brother Abel is also among the treasures of the Venetian Academy. Painted by Tintoretto for the Church of Servites—that building now a ruin to weep over, so beautiful are its few poor relics in their sorrowful decay—the picture once formed part of a larger work, the uppermost portion, as described by Italian writers, comprising figures of the saints Philip and Augustin. These last were painted on one of the doors closing an organ, and on the opposite fold was an Annunciation, now very probably the boast of some distant gallery; but the writer has not been able to ascertain its fate with certainty, and this is no place for the accumulation of mere conjectures; nor can we add more respecting the works of Tintoretto in the Venetian Academy, save only the recommendation that ample time be reserved for the study of these paintings by any student whose good genius may be preparing for him the high privilege of long hours therein.

By the Ducal Palace we must pass all but in silence, yet not regardless. Who that loves Venice—and this comprises all who know her thoroughly—but must feel his heart leap at the remembrance of all that he has here luxuriated in, or grieved over, as the case may be—for where have neglect and decay more to answer for than here? In this building is that "Paradise" for which what some call a sketch, but what French critics affirm to be an independent work, is to be found in the Louvre, as we have said above. A picture of vast dimensions, occupying one end of the great council-chamber, it contains "not less than 500 important figures. . . . . The whole composition is divided into concentric zones, represented one above another, like the stories of a cupola, round the figures of Christ and the Madonna, at the central and highest point; both these figures are exceedingly dignified and beautiful."* I would fain give the whole of our author's words in relation to this picture, which he furthermore designates as "on the whole, Tintoret's *chef-d'œuvre*," and "the most precious thing Venice possesses." But it appears to me that we shall find even more instruction for our particular purpose in the short sentence referring to a picture in the Sala dei Pregadi—"The Dodge Loredano in Prayer to the Virgin," and I give these in preference:

"Sickly and pale in color, yet a grand work; to be studied, however, more for the sake of seeing *what a great man does 'to order' when he is wearied of what is required of him*, than for its own merit."

Let the painter and his patron alike ponder this; it has been said in substance, and more than once, by other writers, but the remainder will not be useless. I have beside another motive for quoting these words here. When our author—beyond all doubt the first of his day and subject, or rather the first of any day as regards his subject—when in his wise impartiality, our author has in any case signified a fault, after dwelling delightedly on the beauties of the master in discussion, there are those who say, "A recantation!" Is this, then, the above a recantation? Are the remarks that follow recantations of the praise just bestowed on Tintoretto? Certainly none who read this great and earnest writer, as he should be read, will ever be persuaded to think so. Speaking of the "Descent into Hades," in the Church of St. Cassano, Mr. Ruskin says:—"Much injured and little to be regretted, I never was more puzzled by any picture, the painting being throughout careless, and in some places utterly bad." It is true that there is a doubt expressed as to whether this picture be by Tintoretto or not, but in respect to the following no such doubt is intimated, yet is the expression of opinion equally frank and unfettered. "Saint Rocco in Glory" is called "one of the worst order of Tintoret's; with apparent smoothness and finish, yet languidly painted."† Of a "Last Supper," which, like that above, is in the school of St. Rocco, we have the following:—"a most unsatisfactory picture, I think about the worst I know of Tintoret's where there is no appearance of retouching."‡ There is more to the same effect, but these must suffice for the moment, although we might still continue, and that to our great profit.

Yet would we fain implore one added grace from the master, at whose feet it is so good to be seated; let him spare us those shrieks that rend the air in all directions, as he holds up some hapless delinquent, caught, as he will have it, *flagrante delicto*, and convicted of *lese majeste* in the realms of Art. For, admitting the baseness to be proved,—a thing not in every case easy to admit, with all one's respect for the authority of the judge,—why will he lash the culprit to the bones?—nay "syne" shake the very life out of him, nor release the victim from that ruthless grasp of his, until he cast him forth a mere shapeless mass, wherein those who have best loved and most warmly admired the form once holding honored place, shall find no trace of all they had been wont to delight in—

> "The very mother that him bare
> She had not known her child."

The rule of Draco is not a good or wholesome rule, and within the gentle sway of the well-beloved Arts, we should deeply mourn to see it established.

It is said, that what he holds to be villain baseness *only* is Mr. Ruskin thus merciless—and that is true; but even when "the offence *is* rank," must the criminal be torn beak and claws? From what appears to him to be vile, Mr. Ruskin revolts with a loathing that finds utterance in prases making one shiver with resentiment, even while fearing that they may not be wholly inappropriate. One lays down the book—one looks round for some good cudgel that shall defend the creature, flagelated so cruelly; but not always—and this must be admitted—with very signal or encouraging success, for when, having exhausted one's own resentment—perhaps caught a knock or two on one's own crown from said cudgel, in one's own unskilful hand—one looks more coolly into the subject, ten to one but justice is found to be at the base of the judgment; but even while weeping over the wounds inflicted, you can do little more than pity the victim; rarely do you see hope of a reversal to that decree under which he suffers. Mr. Ruskin has but a poor gift at doing things by halves—sure and why would he, your honor?—but if you doubt the fact, take him some pretentious picture—present it in your most pretentious fashion, and you shall see. Well, you are satisfied? Fully! Without doubt, *et pour cause.*

But all nonsense apart, and deploring what we admit to be the unsparing severity of our author, never—we repeat it—never is he consciously partial or unfair, whether in praise or blame. Even as relates to the object of his first and best regard—that Master whom all agreed with him in lamenting—the firm resolve of the writer is ever to be just, though the friend in him be self-wounded by the words he utters; thence, indeed, the chief cause given for those charges of inconsistent and contradictory statements occasionally made against him.

As respects the "self-contradictions" affirmed to exist in Mr. Ruskin's works, let him who believes he has found one, read again: let him turn—as is most needful in all works involving the discussion of numerous considerations, and as sometimes directed in the margin—to other sections of the book in hand—or to other works of the author, as the demand of the moment may require—and the cases will indeed be very few wherein all such seeming contradictions are not clearly explained, all apparently conflicting statements fully reconciled. At a word, the high attribute of justice *is* to be counted among those distinguishing this great writer; but it might be advantageously tempered with a somewhat larger exercise of mercy; and let us hope that this may at some future time be added to the rest. He is busy trouncing us now, and finds the "sins unwhipped-of"—the judges —too many for his present amount of longanimity: but let us wait awhile,—he will have driven some scores of them them out of us some day, if we prove not the more hardened sinners, and when shall that have been accomplished, see if he will "put on his white kid gloves," as say our friends across the water, to deal with all the rest.

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break short in his hands, and cannot be made to act against the pious votary. In this picture there is a great number of figures, and much able foreshortening, with numerous portraits from the life, buildings, armor, and other objects of various kinds, making the work one of much interest." See "Lives of the Painters, &c.," vol. v. p. 55.

* Stones of Venice, vol. iii. p. 294.

† Ibid., p. 338.

‡ Ibid., *loc. cit.*

The small remainder of our space must be given to the " Adoration of the Magi," by Tintoretto, also in the Scuola di San Rocco, and with that we must conclude the mere glance, which is all our space permits us to take of the works of this noble Venetian master.

"The most finished picture in the Scuola, except the Crucifixion,' and, perhaps, the most delightful of the whole. This work—the Adoration of the Magi'—unites every source of pleasure that a picture can possess; the highest elevation of principal subject, mixed with the lowest detail of picturesque incident; the dignity of the highest ranks of men, opposed to the simplicity of the lowest; the quietness and serenity of an incident in cottage life, contrasted with the turbulence of troops of horsemen and the spiritual power of angels.

"The placing of the two doves as principal points of light in the front of the picture, in order to remind the spectator of the poverty of the mother whose child is receiving the offerings and adoration of three monarchs, is one of Tintoret's master touches; the whole scene, indeed, is conceived in his happiest manner. Nothing can be at once more humble and more dignified than the bearing of the kings: and there is a sweet reality given to the whole incident by the Madonna's stooping forward and lifting her hand in admiration of the vase of gold which has been set before the Christ, though she does so with such gentleness and quietness that her dignity is not in the least injured by the simplicity of the action. As if to illustrate the means by which the Wise Men were brought from the East, the whole picture is nothing but a large star, of which the Christ is the centre; all the figures, and even the timbers of the roof, radiate from the small bright figure on which the countenances of the flying angels are bent, the star itself, gleaming through the timbers above, being quite subordinate. The composition would almost be too artificial, were it not broken by the luminous distance, where the troop of horsemen are waiting for the kings. These, with the dog running at full speed, at once interrupt the symmetry of the lines, and form a point of relief from the over-concentration of all the rest of the action."*

Respecting that " Crucifixion," " excepted" in the lines above, we have these significant words:—" I must leave this picture to work its will on the spectator, for it is beyond all analysis, and above all praise." We add a short passage respecting the " Flight into Egypt," and some others, which we refused ourselves the pleasure of dwelling on above, partly because restricted by the close limits of our space, but principally in the hope of sending you for your benefit, to the volume itself:—†

" I should exhaust the patience of the reader," says Mr. Ruskin—but then the reader will be most unworthy to approach the book—" I should exhaust the patience of the reader if I were to dwell at length on the various stupendous developments of the imagination of Tintoret in the Scuola di San Rocco alone. I would fain join awhile in that solemn pause of the journey into Egypt, where the silver boughs of the shadowy trees lace with their tremulous lines the alternate folds of fair cloud, flushed by faint crimson light, and lie across the streams of blue between those rosy islands, like the white wakes wandering ships; or watch beside the sleep of the disciples among those massy leaves that lie so heavily on the dead of the night, beneath the descent of the angel of the agony, and toss fearfully above the motion of the torches as the troop of the betrayer emerges out of the hollows of the olives; or wait through the hour of accusing beside the judgement-seat of Pilate, where all is unseen, unfelt, except the one figure that stands with its head bowed down, pale like a pillar of moonlight, half bathed in the glory of the godhead, half wrap in the whiteness of the shroud. Of these, and all the other thoughts of indescribable power that are now adding from the walls of those neglected chambers, I may, perhaps, endeavor at some future time to preserve some image and shadow more faithfully than by words; but I shall at present terminate our series of illustrations by reference to a work‡ of less touching but more tremendous appeal—the 'Last Judgement,' in the Church of Santa Maria dell' Orto."

And of the " Massacre of the Innocents," hear only the closing words—" Their shrieks"—the shrieks of the mothers—" ring in our ears till the marble seems rending around us; but far back, at the bottom of the stairs, there is something in the shadow like a heap of clothes. It is a woman sitting quiet, quite quiet, still as any stone, she looks down steadfastly on her dead child, laid along on the floor before her, and her hand is pressed softly on her brow."

Admirable Tintoretto! many have been thy eulogists, and according to the measure of their perceptions have they given thee praise, but here hast thou found an exponent worthy of thyself.

To the son of the master, Domenico Robusti, high praise has not at any time been awarded; but it is too much to call him " a miserable painter," as is done by our great authority; his feebler light was eclipsed by the glory of that within whose sphere he moved, but contemporaries speak of him as a portrait painter of considerable merit, and a French writer—one of the most upright of our day and of *his* country—refers to Domenico's historical works, with some approval. It is true that, comparing him with his father, the French author remarks, " Il le suivait comme Ascagne suivait Enée, dans l'incendie de Troie, *non passibus aequis*,"—but who is it that does follow Tintoretto " with equal steps!" And further: " Il l'imite, sand l'atteindre, il lui resemble, sans le remplacer."§ But a painter may go far, and happily too, without " overtaking" Tintoretto; and it is not a little to say that the son " resembles" such a father. That he should " replace" him is not to be expected, nor yet desired.

The passing events of the day were those by which Domenico Robusti was chiefly occupied, portraiture excepted. Of these the reader will find examples in the Ducal Palace of Venice, where there are now two battle-pieces, both mentioned by Viardot,—the second taking of Constantinople, namely, and a naval victory, that obtained by the Venetians over the emperor, and in which Prince Otho, son of the latter, was made prisoner. In the Venetian Academy there is a " Christ crowned with Thorns," with two portraits of senators, by Domenico Robusti. In the Church of SS. Giovanni e Paolo is a picture representing the Doge Aluise Mocenigo concluding with Philip of Spain and the Pope the well-known treaty, of which one result was that " Battle of Lepanto," which all will remember to have seen depicted; —and on the good broad space in which the soul of the painter, who is no other than our Giorgio Vasari, delighted,—between the door of the Scala and that of the Sistine Chapel in the Sala Regia of the Vatican.

Of Marietta, the daughter of Tintoretto we know much less than could be desired, but of that little, one circumstance is highly significant. The disciple of her father in his well-beloved art, she confined herself for the most part to portraiture, but in that branch she became renowned: not only were the most eminent of her father's compatriots and fellow-citizens ambitious of delineations by her hand, but she received the offer of commissions from personages of yet higher rank, and was invited to the Court of Spain, first by the Emperor Maximilian, and then by King Philip II. But no temptation could avail to seperate the devoted child from her beloved father, nor could Tintoretto be prevailed on to support the applications of those who would have lured her from his side. United in their lives, in their deaths they were not long divided. Marietta died when not quite thirty years old, and her father survived her but four years: with her the best light of his life was extinguished; yet is it pleasant to remember that in his art the glorious master not unfrequently found consolation, even for that irreparable loss.

Preparation of M. D. Brebisson's Collodion.—Take cotton powder well dried 1 gr., sulphuric ether 90 grs., common alcohol 60 grs.; agitate these substances in a flask, then after some time press the liquid through a fine liquid cloth and preserve it in a flask carefully closed.

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* Stones of Venice, pp. 327, 328.

† Modern Painters, vol. ii. p. 173.

‡ See p. 145.

§ See Viardot—" Musées d'Italie,' p. 330. Paris, 1842.

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MODERN ART IN ROME.

BY F. W. FAIRHOLT.

The pontificates of Julius II. and Leo X. included the Augustan age of modern Art in Rome. To grandeur of conception, and a boundless liberality, they added an enthusiasm which ever urged onward the great men by whom they were surrounded. Impatient of delay, or even of rest, the fiery Pope Julius quarrelled chiefly with the pace which could not keep up with the velocity of his wishes. Michael Angelo seems to have been best fitted by nature to cope with this pontiff; but the gentle Raffaelle died under the impetuosity of Leo. The artist, fearing this want of patience, ran from his palazzo upon a sudden summons, in the full heat of the sun, and died immediately afterwards. His pupils carried out his great designs, but we miss the master-mind after his death. The galaxy of talent which shed a glory over the pontificates of these popes makes their rule an important era in the history of Art. The faded glories of the Vatican still shadow forth the grandeur of design and beauty of execution which rendered it the greatest Art-palace of the age of the Renaissance.

We say these walls "shadow forth faded glories," and we say so advisedly. Perhaps no feeling can be more distressing to the artist, or lover of Art—who has made his pilgrimage to Rome for the first time—than the mortifying state of decay in which he finds some of the most celebrated works by these master-minds. The gloomy chambers, whose walls exhibit this crowd of faded figures, are the famous "Camera" of Raffaelle; the open galleries around the court-yard of the Vatican, partially decayed by weather, is his "Loggie." The dim grey picture on the wall of the Sistine Chapel, whose general features are now only barely distinguishable, is "The Last Judgment" of Michael Angelo. "After all your high-raised expectations, you will walk through a set of cold, square, gloomy, unfurnished rooms, with some old, obscure, faded figures painted on the walls—your disappointment will have no bounds. But have patience—suspend your judgment—learn to look on them, and every fresh examination will reward you with the perception of new beauties, and a higher sense of their excellence."*

The ruin brought upon these noble works is the result of the most wanton neglect and injury. In 1528, when Rome was taken by assault and cruelly pillaged by the Constable Bourbon, the brutal soldiery did more mischief than the Goths in their earlier ravages. They lighted their fires in these glorious rooms, blackening Raffaelle's frescoes, then fresh in their beauty, and wantonly destroyed many of the finest heads he had painted. The popes afterwards endeavored to repair the injury; but the charmed hand was wanting, and Lanzi reads a severe remark made by Titian on this "restoration" when he first saw it.† Every inch of walls and roof of these chambers were once refulgent with the glories of Art. So was the Loggie; Lanzi says, "They who saw it after it was finished—when the lustre of the gilding, the brilliancy of the colors, and the freshness of the marble made it resplendent with beauty on every side—must have been struck with amazement as at a vision of Paradise." The open gallery in which they are painted overlooks the district of the Trastavere and the whole of Rome beyond, the view being bounded by the Sabine Hills; it is the noblest prospect to be seen of the city, with the grand colonnade of St. Peter's at your feet. Well might the old popes delight to linger in this lovely gallery, and inhale the pure breezes as they floated over the Eternal City; but Lanzi sorrowfully notes that "the exposure of the gallery to the inclemency of the weather, had almost reduced it to the squalid appearance of the ancient grotesques" in that comparatively short period. Now the frescoes have, in some places, faded altogether, many great pieces of stucco have fallen from the walls, and the whole has a dirty and ruined look. The present pope has glazed the whole of the arcades; but this is like another realization of the old proverb —"Shutting the stable after the steed is stolen." He has also commenced an expensive restoration of the topmost story, which is certainly a most brilliant reproduction; but, of course, it ceases to be of the same interest as the original work, and it is much to be regretted that a loving care was not earlier bestowed on this renowned work.

The "Last Judgment" of Michael Angelo is a still greater wreck. It also has suffered from its position. It occupies the entire wall of the Sistine Chapel, against which the altar is placed, and this obscures a great part of the picture. To make it still worse, a baldachin rises high above it, and altogether hides the central part of the lower half of the design. The smoke of the incense, and the chills and damps, as well as the general neglect of more than three centuries, have ruined it as a picture, and you can now only discern the general design; the figures come forth, as you study it, like ghosts through the foggy haze of a supernatural vision. It is like experiencing a dream to look upon it.

It is in the divine pictures by Raffaelle that we must now seek his master-mind. "The Transfiguration," the noblest of human works, still exists in purity. We need not descant on that which is so well known, but speak rather of his other works in Rome. In the Borghese Gallery is his own portrait at the age of thirteen, remarkable for its purity and truth, and full of the rich promise of his after-life. In close proximity is placed his first historical picture, painted when he was twenty-four years of age. It is full of action, powerful in composition and color, and as perfect in preservation as could be wished. On looking at pictures, astonishment rises in the mind stronger than ever, that men should exist to "write down" so divine a spirit; and, cloyed with the beauties of pure and true Art, defend and worship the hideous conventionalities of pre-Raffaellitism: thus preferring the darkness of the middle ages to the "light from heaven."

In the bright light and clear air of Italy, pictures certainly "tell" more powerfully than in our dingy galleries. They evidently accord better with a sunny land than a foggy one. Their artists, too, seemed to have dipped their pencils in brighter tints, and had generally a gayer fancy than the northmen. No artist shows to more advantage here than Titian; his glorious allegory of Sacred and profane Love," in the Palazzo Borghese, is a work on which the eye and mind may rest without satiety. There is a half-length of a noble female slave, richly dressed, among the small collection of pictures in the Barberini Palace, finer than the Raffaelle Fornarina (a coarse picture of a coarse woman), or the over-praised "Beatrice Cenci," which Shelly has invested with a poetry not its own. Then for Titian's power as a portrait-painter, look upon the children of Charles V. in the Corsini Gallery; you leave them as if you were leaving living people, and you remember them afterwards as vividly as you do the persons to whom you may have been introduced at Rome. For such undying records of fleeting life can any artist be paid too highly? It is but a purchase of immortality!

In visiting the Roman palaces, the stranger will be first astonished by their enormous size; then by the lavish splendor of their decoration; and lastly by their desolate air. Generally constructed in the sixteenth and seventeenth centuries, when the nobles were very wealthy, and anxious to outstrip each other in display, they are now scarcely properly tenanted. Many are let in suites of lodgings, or for the season to wealthy travellers. The Barberini Palace has the look of a deserted barrack, and the remains of the picture-gallery are huddled in three small rooms down a back stair; while acres of apartments show closed shutters, broken windows, or servants' rags out to dry. More melancholy pictures of fallen magnificence than some of these palaces exhibit, cannot well be conceived. It is in the Palazzo Pamphile-Doria only, that we see a noble building nobly kept up, and absolutely lit with gas—an improvemement quite recent in Rome, and so much opposed to the spirit of the ruling powers, that it is restricted to the one long avenue—the Corso—all others being left in dark, dirty insecurity, two centuries behind the present age.

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* "Rome in the Nineteenth Century." 1820. This opinion of an amateur is still more strikingly enforced by the written experience of one of our greatest painters—Sir Joshua Reynolds—who visited these works with longing enthusiasm. He records his first impressions thus:—"I remember very well my own disappointment when I first visited the Vatican; but, on confessing my feelings to a brother student, of whose ingeniousness I had a high opinion, he acknowledged that the works of Raffaelle had the same effect on him; or rather, that they did not produce the effect which he expected." He adds how much he felt mortified at not finding himself enraptured with the works of this great master, and declares "it was one of the most humiliating circumstances that ever happened to me." He naturally solves the enigma in the course of due study; and finds that if Raffaelle's works "had really been what I expected, they would have contained beauties superficial and alluring, but by no means such as would have entitled them to the great reputation which they have so long and so justly obtained. The excellence of his style is not on the surface, but lies deep, and at the first view is seen but mistily. It is the florid style which strikes at once, and captivates the eye for a time, without ever satisfying the judgment."

† It was Sebastian del Piombo who had been employed thus, and Titian purposely asked him who had presumptuously bedaubed them. Lanzi, in his *Storia Pittorica*, thus records his words: "Che fosse quel presumtuoso ed ignorante, che area embrattati que' volti?"

The older palaces, the Borghese, Spada, &c., are very striking in their interior arrangements. The fountains in the saloons of the former are pleasant novelties to a stranger; but the sculpture, painting, and gilding which cover walls and ceiling are quite oppressive by their lavish design. It reminds one of the full-blown glories of the Court of Versailles. But it is all splendor and no comfort; you clatter along on stone or stucco floors, and the rooms are totally unprovided with fireplaces. A brazen or an ugly open pan of charcoal is introduced when warmth is required; generally the inhabitants content themselves with a small earthen pot of charcoal, which is placed in the lap, and the hands held over it in cold weather. The alterations of climate are sometimes very severe in Rome; generally the change of temperature between day and night is violent. From the contiguity of the Pontine Marshes, fevers are generated, and there are few cities more unhealthily situated.

In wandering through the half-deserted streets between Ponte Rotto and the Ponte St. Angelo, many fine old houses will be noticed, once the residence of important signors, now inhabited by colonies of poor families. Traces of misery and want peep forth from the dirty doors and broken windows of these noble old mansions; but the walls tell tales of better days. Many fine fragments of ancient sculpture decorate their *facades*, and you occasionally meet with pleasing designs upon the fountains with which Rome is provided abundantly. The classic Romans first gave the inhabitants this supply of pure water; and though it is now more limited, it is still a noble one for all purposes. Many of the large palaces have a small fountain at an exterior corner, always running, for public use; and there is one at the Simonetti Palace very indicative of the sixteenth century, it represents the half-length figure of a man in a gown and cap, holding a barrel in both hands, and pouring the water through the spigot-hole. With grander designs for fountains Rome abounds,—from the vast heap of sculpture at the back of the Conti Palace, known as the Fontana di Trevi, to the simple and graceful Triton who blows the water through his shell in the Piazza Barberini. The first is in very questionable taste—a huge assemblage of rocks, sea-gods, horses, and shells; but the latter is an elegant design by Bernini.

Rome possesses specimens of the art of Bernini in all its phases, and exhibits his gradual deterioation in style as he grew older and more mannered. Thus, the group of Apollo and Daphne in the Villa Borghese, executed when the sculptor was only eighteen years of age, is a really fine work: so also is the Æneas and the David; it is, indeed, in this one room, "the Camera di Bernini," we see how great the sculptor was when young. If we should see what he was in the zenith of his fame, when he unfortunately exercised a fatal influence on the Arts, we must go to St. Peter's; and there, in the place of honor, see his gigantic absurdity, the group of fathers of the Church supporting the bronze case for the chair of St. Peter. Here you have his vulgar figures, his conceited attitudes, his meaningless draperies, in perfection and sigh to think of the mischief his want of taste did in his own day, and long after it, by means of the false school he founded.

Canova has honors in Rome second only to the ancients. To him one of the four pavilions in the "Cortile di Belvidere" of the Vatican has been assigned. It contains the Perseus, and the boxers Creugas and Damoxenus. A work more characteristic of the peculiar style of this artist, is the reclining Venus of the Borghese collection, modelled by him from the sister of Napoleon; its delicacy is almost carried to excess—it is the "stipping" of sculpture, and like his "Graces," reminds us of the opera ballet rather than of nature. How great and pure he could be, let his monument to pope Clement XIII. in St. Peter's testify? Nothing can be finer in conception, or purer in execution than one figure here—the Genius of Death. It is a graceful figure seated with torch reversed, the face tinged with melancholy of reflection, rather than of sorrow; the pondering over mankind's inevitable doom; a melancholy seductive, rather than repulsive; no hideous, hopeless sorrow here, like the weeping children, and broken-down mournes over urns on ordinary tombs. Death is here not frightful, but hopeful. He is the angel of God employed in his immutable decrees,—the harbinger of a better world, whose placid holy face bespeaks the quiet and happiness the he brings to all who walk faithfully on earth. This one figure is worth a journey to Rome, and few minds have produced so high and holy an embodiment of pure thought and right feeling.

The studios of modern Roman sculptors—including as they do many who are Romans by residence—are among the most delightful visiting places within the whole city walls. You need no ceremonious introductions here. You merely knock and enter. Around you are the workmen and their labors,—the living artists who cut from the shapeless marble-block works destined to last after the frail human hand that fashioned them has mouldered into its native clay. Happy men seem they all!—for all true lovers of Art must be happy. The consciousness of the appreciation of beauty is a joy to every mind; how much more must be the pleasure of giving that consciousness a tangible form—an enduring existence; rewarding him who made it, gratifying him who possesses it, and hundreds yet unborn who may gaze on it? Master-minds in various grades of life there are many; but the poet and the artist has the most powerful mastery in the witchery of his works through all ages of change.

To the honor of Arts and its professors in Rome let us close our notes with a testimony to the brotherhood they form. From all quarters of the world students flock to Rome; and here they literally live as "a band of brothers." The nature of their studies breaks down all barriers which nationality or customs might impose elsewhere, and all meet on common ground, whatever their native country may be. An amicable cordiality seems to reign in men who might, in all else but Art feel and act very oppositely to their compeers, but Art, is the cement of friendship and peace; may it always produce "good will among men!

We have no statistics of the numbers of native and foreign artists who reside in Rome. Very many are foreigners, who, like our own Gibson and Penry Wllliams, live there entirely; others are students—birds of passage—who carry home the experience of months for the guidance of home-life in after years. They have their known resorts, and one famed one is the Café Greco, in the Via Condotti, where coffee, ices, tobacco and general conversation employ their evenings, and where breakfasts of a simple kind are generally eaten. An artist's day is passed in his studio, and if his dinner be not sent from a *trattoria*, he goes there. It would not be easily possible to mention an existence more replete with the elements happiness than that of a true votary of Art. Removed from the turmoil of life, he exists only for the sturdy of the beautiful; and if his course he chequered by the crosses which are the lot of all, he may console himself by knowing they are fewer than those that beset the more adventurous in the battle of life; while his mental organizations open a field of pleasure closed to mere worldly men. If Rome offered no ather lesson, this, that teaches the amenities Art always offers to its devotees, whether professional or amateur, worthy of all consideration.

From the Journal Phot. Soc.

NEW SELF-DEVELOPING NEGATIVE PROCESS.

16 Porchester Terrace, April 6, 1857.

To the Editor of the Photographic Journal:

Sir,—I do myself the pleasure to hand you a short paper on Photography, which, if you consider worth printing, I should be glad to see inserted in the Journal. At the same time (with reference to the concluding paragraph of the communication) I beg to hand you a sheet of paper made of the fibre of *Daphne cannabina*, an Indian plant. You will find, on examining this fibre under the microscope, that it is less in diameter than the fibre of cotton and flax, and that it is highly transparent. It is also exceedingly strong, and it behaves admirably with photographic chemicals. I think it a promising fibre for photographic paper.

I remain, Sir, yours obediently,
C. J. Muller.

While in India, in 1851, I communicated to the 'Athenæum' a photographic process with nitrate of silver, nitrate of lead, and iodide of iron. This was in truth a modification of Dr. Woods' Catalysotype, though, at the time I discovered the process, I was not aware of Dr. Wood's use of iodide of iron in photography. Subsequently I reduced the process to one of greater simplicity by omitting the use of nitrate of lead. The paper was in the first instance floated for three or four minutes on the surface of a bath of nitrate of silver of the strength of 25 grains of the salt to one ounce of water. It was then removed to a slab of glass, on which had been placed a piece of clean bibulous paper, and a glass tube about half an inch in diameter was rolled over the wet surface. This removed superfluous moisture and improved the surface of the paper. Two or three minutes afterwards, when the paper no longer glistened with moisture, it was placed on a bath of iodide of iron containing 6 or 7 grains of iodide of iron in one ounce of water. Here it was left for about a quarter of a minute (longer exposure gave an *insensitive* paper). It was then removed to the dark slide, being placed behind the glass with the prepared surface in close contact to it. It was exposed in the camera without delay, and generally gave fine pictures in 15 seconds under favorable circumstances. No developing agent was required. The definition was extremely fine, and the lights remarkably clear and brilliant.

On printing positives from negatives thus obtained, I found, however, that the sky never possessed enough opacity to resist, sufficiently long, the action of the light upon the positive paper, so that this portion of the picture in the positive was always more or less darkened. An examination of the sky of the negative under the microscope, showed that only the superficial fibres of the paper were darkened,—all below remained perfectly white, and the spaces between the superficial fibres were not filled up with darkened iodide of silver. This at once accounted for the defect, and I was led to make experiments for the purpose of obtaining a perfect *superficial* picture, wherein the darkened portions should exhibit no transparent interstices under the microscope.

I was compelled to abandon my experiments in consequence of ill-health, but I still entertained the idea that it is practicable to obtain what I have sought for: I require a *superficial* picture, because this alone is consistent with perfect definition and the highest degree of sensitiveness, as in the process on glass. In the ordinary Talbotype the picture is more or less in the substance of the paper, and the definition is consequently less perfect than it is in pictures on glass. The picture is a *thick* one in an imperfectly transparent substance, whereas for perfection it should be a *thin* one.

In the course of my experiments I found that a modification of the process above mentioned ensured complete opacity in the darkened parts, but at the same time, the picture was in the substance of the paper, instead of on the surface, and the definition therefore imperfect. As the process may be considered interesting to experiments in photography, I give the particulars.

Remove from Sandford's or Whatman's negative paper, all the sizing, by maceration in water acidulated with nitric acid, and subsequent washing in distilled water. Lay the wet sheets on a table covered with clean cloth free from starch and allow them thus to dry. The paper should be perfectly bibulous after this treatment.

The dry paper is placed on the surface of a bath of iodide of iron containing about 10 grains of iodide in 1 oz. of water. It is allowed to repose on this for one minute, when it is removed by means of wooden forceps and laid, wet side downwards on a sheet of clean glass, and left to dry. This part of the process may be performed many hours before the paper is made sensitive When required for the camera, it is placed upon a bath of nitrate of silver, containing 50 grains of the salt to 1 oz. of water. If the paper be required to keep good for an hour or two, it must be left in this bath for five minutes; if to be used immediately, and all the conveniences of a laboratory are at hand for the treatment of the picture after removal from the camera, then it should be left on the silver bath for about one minute only. The degree of sensitiveness, or rather the rapidity of development, will be found to depend in inverse proportion upon the duration of exposure to the silver bath. On removal from the bath the paper is placed, prepared side downwards, upon the glass of the slide, so that when exposed it lies behind the glass. Slips of thick cardboard placed under the glass will prevent the paper from coming into contact with the wooden partition of the slide. If the paper has been one minute in the silver bath, the exposure in the camera should be for about three minutes. If it has been five minutes in the silver solution, the exposure should be from five to ten minutes. My experience is of the climate of India.

No additional developing agent is required, this existing already in the substance of the paper in the proper proportion, in the shape of nitrate of iron. The picture is developed quickly or slowly according to the time the paper has been in the silver bath. It may be perfectly out in ten minutes, or it may take an hour. The lights will not spoil until after the picture is completely out. The dark parts are of intense blackness and the most complete opacity, and the picture is completely in the substance of the paper. The proof should then be washed well in distilled water, or in common water slightly asidulated with sulphuric acid, and subsequently fixed by means of hyposulphite of soda. The object of acidulating the water is to prevent the formation of a deposite of oxide of iron which would otherwise make its appearance and soil the picture.

French paper, or paper sized with starch, will not answer for this process, as it is very difficult to render perfectly bibulous. Sanford's and Whatman's papers are very coarse in texture when the sizing is removed, and therefore the pictures obtained on them are of inferior definition. What is required to produce the best results with this process is a paper moderately thin, of fine texture, and made of *one* description of fibre. In Sandford's paper there are, I think, two descriptions of fibre, one of which freely takes wax and becomes *transparent*, the other resistant to wax and *opaque*,—and these two sorts of fibre seem to me to become sensitive in different degrees, under the influence of the chemicals used. I consider it of the highest importance in photography on paper, that the paper should be composed of one kind of fibre only.

My experiments have also led me to entertain the opinion that all organic sizing is injurious in photographic processes on paper. Theoretically, we require only a vehicle for the chemicals necessary in the process, and that vehicle should be a substance which has no chemical action, as glass, for instance. A vehicle of this description with the properties of paper is not perhaps obtainable, but in the absence of a better, it is, I think, desirable to employ paper chemically pure, and composed of one species of fibre only and the best seems to me to be cotton.

Crystallization.—The general idea attached to the word crystallization, should be that of an operation by which a body in its passage from a fluid to a solid state assumes a regular form.

From the London Art-Jounal.

THE FAUSSETT COLLECTION.*

The Faussett Collection has recently obtained so much celebrity, as well for its intrinsic excellence as for the strange perversity by which it has been cast aside from our National Museum, that this elegant volume must be peculiarly acceptable to all students of our Saxon Antiquities. A more important addition to our knowledge of the manners and customs of our Saxon forefathers has never appeared. It comprises the detailed results of the opening of nearly eight hundred tumuli, ranging over that part of Kent, from Canterbury to the sea, inhabited by the early Saxon settlers in England—their graves containing in all instances the weapons of the men, and the personal decorations of the women, who thus took with them to "the narrow house," those things they most valued in life. It is impossible to over-estimate the value of so extensive and curious a collection, unique in its power of illustrating a dark period in English history. In looking over the splendid examples of jewellery engraved in this book, or the varied appliances for the ordinary luxuries or wants of life, we cannot fail to be struck by the high amount of taste and civilization they prove must have existed among the pagan Saxons, who are too frequently considered semi-barbarous. The jewellery particularly excites surprise; and the marvellous brooch discovered at Kingston, and forming the opening plate of this volume, has been pronounced by jewellers of the present day as fully equal in manipulative power to any modern work of their art. It is three inches and a half in diameter; and its surface is covered by five concentric circles of gold, inclosing garnet, turquoise, and mother-of-pearl, cut to fill variously shaped cells, the effect of the jewels being heightened by layers of gold foil. Between many of the stones is gold chain-work, twisted and interlaced, the whole being secured and affixed on a gold base, and the pin which secured it to the mantle also milled and enchased with equal splendor. It is the grandest piece of jewelry of its age ever discovered in this or any other country. But even this fine work is rivalled in delicacy of manipulation by some others of a smaller kind in the same collection; and the details of that on Plate II., fig. 4, and the elegant pendants, Plate IV., figs. 4, 7, and 13, assert the high ability of these early goldsmiths.

When we say that the collection contains twenty of these magnificent brooches; more than fifty jeweled pendant ornaments in gold, silver, and base metals; buckles and personal ornaments of the most varied kinds, comprising all that the luxury of the Saxon might require; an abundance of defensive arms for the warrior; an equal abundance of toilette implements, or *articles de luxe*, for "the fair-haired maidens" he defended; glass pottery, and miscellanea, making up an almost complete picture of the everyday life of this ancient people, an idea may be formed of the extreme value and paramount interest of this unique collection.

Certainly one of the most curious instances of the accidents which beset literature and science is afforded by the history of this collection, which has been allowed to remain in obscurity for nearly a century, and the manuscript account liable to every accident of fatal destruction. After it had been brought again to the notice of the antiquarian world by Mr. Roach Smith, in 1844, not one of the Antiquarian Societie's moved one step towards the publication of any portion, although freely tendered to their use. But more marvellous than all, when the entire collection, including the whole of the manuscript and drawings, was very properly offered in the first instance to the trustees of the British Museum, that it might find its proper resting-place in our National Collection, then almost entirely wanting in National Antiquities, it was curtly refused by that body! Astounded at such a result, as the price required was extremely moderate, the leading students in antiquities took alarm; the officers of the museum argued with their *superior* (?) officers, the trustees, and were backed by urgent petitions from the Society of Antiquaries, the Archæolagical Institute and Association, by many private individuals, and by the still more important promises of the gift of other private collections of Saxon Antiquities to swell the national store, should the purchase be effected. The time for the decision of the trustees was extended by Dr. Fausett's executors, and the whole subject in its full bearings again placed before their eyes, accompanied by the fact that three collectors were only awaiting their decision to purchase the whole at an advanced price, so that even the inbred trading spirit of an English board might be more than satisfied with the whole transaction. We can scarcely ask our readers to credit the fact, but the offer was again refused! and the collection next day passed into the hands of Mr. Joseph Mayer, F.S.A., of Liverpool, who at once made an arrangement for the publication of the original records of Faussett's discoveries, securing the services of Mr. Roach Smith to edit the manuscripts, and Mr. Fairholt to draw and engrave every object comprised in the collection.

Although the originals be thus lost to the nation, the printing-press will make them even more useful to the general world; and, thanks to Mr. Mayer's spirited proceedings, the discoveries may belong by this means to every student of our early history. It is quite certain that had the British Museum purchased the collection, its rulers would not have published the manuscript, and caused the antiquities to be engraved for general use, as they have now been done. Thus, out of a great evil a much greater good has arisen to aid science in general; and Mr. Mayer, Mr. Roach Smith, and Mr. Fairholt, have thus given to the world at large the full benefit of Faussett's research; and in doing it have also produced an undying record of disgrace to the trustees of the British Museum, which must last while literature exists.

Of the labor of Mr. Roach Smith as editor we can conscientiously speak in high terms. He has faithfully given the original record by Bryan Faussett, accompanied by notes explanatory and critical, comprising the results of that knowledge which recent experience has given the archæologist. But he has done much more than this; for in an elaborate introduction to the volume he has written such a clear record of the results of the various isolated researches of investigators, combined with his own experiences, as to realise the truth of his opening words:—"The real value of antiquities should be determined by the extent to which they are capable of being applied toward illustrating history." Seldom have we met a more honest exponent of facts than Mr. Roach Smith, or one who has less desire to argue for favorite theories; he has been imbued with the proper spirit of a truthful inquirer, who values his labor but as the means of eliciting *fact* in all clearness. For the first time he has enabled us to classify the somewhat chaotic mass of of Saxon antiquities discovered at home and abroad; and by the careful comparison of their peculiarities, and the thoughtful testing of historic record, made one illustrate the other so completely, that we may safely refer certain ornaments to certain tribes, who had settled in various parts of England, and who brought with them and retained many peculiarities from their original homes. It is this enlarged and philosophic system of comparison which can alone clarify the obscure points of early British history where written documents fail; and we therefore regard this volume as a most important introduction to the history of Saxon in England. When we turn to the pages of the ordinary histories, and see how brief and unsatisfactory they are, we feel that there is ample space for a new history before the Norman conquest, for which such works as this pioneer the way.

Mr. Fairholt's labors have been conducted in a similar spirit to the editor's, and he has most scrupulously labored for truth alone. There is no attempt in his work at meretricious effect; but wherever the grace of Art was requisite it has been called into play; and the jewels are all colored by hand—so faithfully that we seem to look on the originals; while the plates of beads are equal to water-color drawings in delicacy of shadow and variety of tint. They are the most perfect things of their kind that have yet appeared. Various processes have been adopted for the proper delineation of the various objects; and while the sharpness of the engraved line defines the minute patterns on the jewels, the softness of aquatint realizes the texture of the glass or pottery.

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* INVENTORIUM SEPULCHRALE; an Account of some Antiquities dug up in Kent by the Rev. Bryan Faussett. Edited by Charles Roach Smith. Printed for subscribers.

From the Liverpool Photographic Journal.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The Fifth Meeting of the Society took place at the Royal Institution, on Tuesday, the 19th instant, Charles Corey, Esq. in the chair.

It was proposed by Mr. Forrest, and seconded with Mr. Duckworth, and resolved, that the meetings of the Society be adjourned until September: the next meeting will, therefore, take place on Tuesday, September 15th.

The Chairman exhibited a beautiful specimen of untouched photography, a portrait of the talented author and actor, John Brougham, of New York, by C. D. Fredericks, of Broadway, which was much admired.

Mr. Keith also exhibited a specimen of the new Hallotype process, patented by Messrs. Hall and Gurney, of New York. A peculiar effect is produced in this process by the combination of two prints from a collodion negative. The upper one is attached to the back of a glass, and made transparent by varnish, another picture is then roughly and strongly colored, and placed underneath.

Mr. Bell stated that he had been for a long time annoyed with the granular appearance of waxed paper pictures, and also minute red spots in the finished negative. He was inclined to attribute this to using a super-saturated solution of gallic acid. Having since tried a weaker solution he had not been troubled with the same defect.

Mr. Cooke corroborated this view.

Mr. Duckworth was more inclined to attribute it to using too strong an iodizing solution, and also insufficiency of acetic acid. He had made more granular negatives with Townsend's process than any other, which he attributed to the large quantity of iodide in the paper.

The Chairman, from his own experience, recommended the substitution of citric for acetic acid. He exhibited some large negatives developed with pyrogallic and citric acid, which leave little to be desired.

Mr. Bell announced that the next distribution of the National Exchange Club would take place on the 25th June. All prints intended for exchange must therefore be forwarded not later than the 18th June.

Some specimens of photographic paper made by Hollingsworth were produced, as also a very superior sample made by Messrs. A. Pirie and Sons, of Aberdeen. The quality was quite equal to the French papers, while the price was less than one-half.

In answer to a question from Mr. Harding, as to the use of prisms for reversing the image, the Chairman recommended that the glass should be placed in the slide with the collodion side up; having then another glass with small pieces cemented on the corners, lay this down upon the face of the collodion to protect it from the spring at the back; the picture will then be taken through the glass, instead of on the surface, and will be correct in position. This plan had been most successfully practised by the Rev. Mr. Banner.

At the last meeting, Mr. Keith stated that some polished crown glass had a roughness on one side, which fogged the picture. In answer to an enquiry from the Chairman, Mr. Forrest stated that this would occur in a small proportion of the glass, and could readily be detected by rubbing the back of the hand over it. In the process of manufacture, the glass, while in a state of semi-fusion, sometimes took up a little dust from the fire, which was afterwards drawn by centrifugal force to the edges of the table. He also stated that he intended to prepare some plates which would very much simplify the present mode of producing vignette prints.

The Chairman then read the following address relative to the recent decease of Mr. F. Scott Archer:—

"The present is an occasion that calls loudly upon us as a body of intellectual and energetic men, to offer a grateful tribute to the memory of one, by whose enterprising research and generous sacrifice of his own interests we have obtained the very mainspring of our enjoyments, as amateurs of a most fascinating and elevating pursuit. The public journals have acquainted you with the death of Mr. Frederick Scott Archer, leaving a family, it must be regretted by all thinking and feeling men, almost unprovided for. A short retrospect of the last seven years will clearly show how every man who knows the use of a camera (and where shall we draw the limit of so vast a body as this comprehends), either in this country, the Continent of Europe, and of America, and a large portion of India, indeed the whole civilized world, one and all, are called upon, not merely to offer the outward tokens of respect to his memory and sympathy for those whom he has left behind, precious as such tributes would infallibly be to the bereaved ones, but are also called upon for substantial proof of their gratitude for his disinterestedness, by rescuing those whom he loved while in life from the bitter privations of poverty and neglect; and the best stimulus will be to reflect that, to enrich us with the free use of these fruits of his labors, he deprived those dear ones of that which would have left them, at least, in affluence, if not in possession of great riches. There is no question that, had Mr. Scott Archer, in the exercise of a very excusable worldly wisdom, tied up the exclusive right to the use of collodion by the patent laws, that the produce of wealth to him would have been enormous. Now, we do not intend to draw invidious comparisons, but must contrast the line pursued by others whom love of the world's gear, or a limited desire for their own personal aggrandizement, have so strained the law into an endeavor to coerce even the amateur to submitting to their exactions. How noble, how widely antagonistic to this narrow policy was that of the object of our present regard. For about the previous seven years the absolute necessity of finding some medium not included in patent rights for reproducing the fairy imitations of the beauties of nature and art by the use of the camera began to be more and more urgently felt by the vastly-increasing body of admirers of the novel and delightful art. The craving desire for new and greater wonders from the actinism of light was trammelled and kept down by a species of tyranny in the possessors of what had falsely become vested rights. Our enterprising neighbors, the French, devised a menstruum for the spreading of an energetic film, namely, albumen, to which they have adhered more or less faithfully to the present day. Though this, doubtless, admits of photogenic reproduction with marvellous exactness and minute fidelity, yet the method of working is troublesome and inconvenient. About September, 1850, Mr. Scott Archer perfected his experiments with a liquid the name of which was barely recognized, for the element from which it was produced had its birth but a year or two before. The success was immediate. The great fact of pictures of, as it has since proved, instantaneous production, and of ultimate infinite reproduction, in great variety of form, not merely as the toy of the fancy, but as the medium for some of our most scientific and elaborate efforts of genius, was at once accomplished, and with a generosity unequalled Mr. Archer parted with the magic wand that would have placed him amongst wealthy and prosperous men. Without a single reservation he published the whole of his process in the *Chemist* of the March following. Certain modifications of this formula have been put forth from time to time, but the basis remains still the same: the collodion of Mr. Scott Archer is still in use by every photographer in the United Kingdom, and will be to the end of time. To the amateur—for here we recognise none other, this free gift was a priceless boon, but how shall we regard the memory of a man who deprived his offspring almost of bread, to disperse that bread amongst thousands, for a new class amongst the already crowded competitors for public fame and private sustenance now sprung up, and it is estimated that the discovery of Mr. Scott Archer affords the means of living to not less than fifty thousand of Her Majesty's subjects, without taking into the account those who are dependant upon them in their families, and those who work for them. Here is a public benefactor—here is a man worthy of all honor—shall we give pensions to those who have cultivated letters: improved the taste of the public mind, and leave unprovided for, the family of him who has freely given bread to thousands. The parent society in London has set a noble example and collected instanter the sum of £160. The act is worthy of so large and enlightened a body, all honor to them; in our limited sphere we cannot hope to emulate them, but we must remember that their contribution, rich as it was, is only for the present time; the hour of privation is only deferred by this; we must do our best to ward it off altogether from the family to whom we owe so much. The French set us an example to teach us our duty here, they gave to Daguerre a pension of 10,000 francs; let us use every effort to induce the Minister to counsel the Crown to provide entirely for this destitute family. Her Most Gracious Majesty, the noblest English mother, will feel the desolation of one who has contributed even to her enjoyment, exalted as she is, and her impulses are ever so well directed; that they need only to be called into action to be applied at once to so desirable a purpose. Be it our act, then, through our secretary, to open a communication with that English Mæcenas, Mr. W. Brown, who confers honor upon the southern division of this our county, by representing it in Parliament, and if the subject in his hands do not of itself speak trumpet-toned to the Prime Minister, let it be also backed up by the support of the members of the borough, Messrs. Horsfall and Ewart, who, if not previously interested in the subject, would gladly embark in a cause evincing the nation's gratitude. Our work is plainly before us, by moving the fraternity, through the medium of kindred societies, to prevent the present wants of those he has left behind. To posterity we must leave the work of awarding to his memory that honor so eminently his due—his name will be connected with the best effects of photography till time shall be no more.

'Lives of all great men remind us,
We can make our lives sublime:
And departing leave behind us,
Foot prints on the sand of time!'"

It was proposed by Dr. Ayrtoun, and seconded by Mr. Bell, that the paper just read be forwarded to "*The Times*," for insertion, and that the Secretary be empowered to communicate with William Brown, Esq., M.P., and with the various provincial societies upon the matter. A subscription list was also opened by Mr. Forrest, Treasurer, for the relief of Mrs. Archer, which was headed by Mr. Keith with £5.

A vote of thanks was passed to the Chairman, and the meeting separated.

For the Photographic & Fine Art Journal.

PHOTOGRAPHY IN BALTIMORE.

Mr. Snelling—*Dear Sir*: I promised to drop a note by the way, and in the prelude allow me to speak of the different establishments here in Baltimore. I don't know who I shall rank as first, they are all first in their different branches. Mr. Whitehurst who has been one of the leaders of this great Art is about to open a new gallery on Baltimore street, where he is sparing no pains nor expense to make it second to no gallery in the country.

Mr. Pollock who now has his gallery on Baltimore street near Calvert, is making very fair pictures: his photographs are very good. Mr. P. still makes daguerreotypes.

Farther down the street, Mr. P. L. Perkins has a very fine gallery. His ambrotypes are very fine in effect and position; Mr. D. Cowell is the operator. Mr. P. does not take photographs to any extent. He is getting up life-size photographs in oil very good. A few doors below is

Mr. Israel, who does a thriving business, and takes a great many photographs and ambrotypes, and works them very successfully. Below Mr. Israel's, is Mr. Clarke's gallery. Mr. C. takes nothing but ambrotypes, and works very clean pictures and does a fine business.

In your next number I shall be pleased to criticise the differ-operators, and the merits of the different galleries. There are many other galleries in Baltimore where good pictures are taken; but those that I have mentioned appeared to stand foremost in their branches. I shall be most happy to refer to them all hereafter. Also, I shall state the style of the different pictures taken by each of the different galleries. I may add that the business is very dull at present, but all manage to live.

Yours, Rome.

From the London Art Journal.

THE TURNER DRAWINGS AT MARLBOROUGH HOUSE.

This selection—but a small portion of the contents of those old, worn, and smoky portfolios that crowded the sanctum of that well-known dirty-looking house in Queen Anne Street—this selection, we say, contains the vignettes made for Rogers' "Italy," the drawings for "The English Rivers," "Rivers of France," &c., the earlier works in sepia, the latter in color. Here, then, at length are before us those mysterious works which, in engraving, have charmed the world. It cannot be said that all are are successful in imposing effect, but those that are not so attractive as others, are remarkable for a marvellous breadth of seriously minute elaboration, with the ever-recurring assertion that nature has no lines, but consists only of formal darks and lights. Turner's principle of employing alterately dark and light forms is alphabetically shown in the sepia drawing "Martello Towers at Bexhill;" but the art is concealed, and is apparent only on analytical examinatian. With the masses and the distances of the view some liberties have been taken, but we at once recognise the locality. There are a few larger views richly colored, as "The Burning of the Houses of Parliament," "The Arsenal, Venice," "Ivy Bridge," &c.—the last named a charming drawing. Certainly, in the works of the latter period, the forms are generally superseded by light or shade, and surely no artist of any time has ever employed clouds so significantly as Turner. There are two sketches for marine pictures of marvellous power as to chiaroscuro, and so fresh in description that we even feel the wind that blows out of the picture. Of the English rivers there is the Wye, with a ruin, perhaps intended for Goodrich, but not like it. "South Shields, the Tyne"—a moonlight, looking seaward, with Tynemouth lighthouse on the left; then, on the same river, "Newcastle," looking up from far below Pandon Dean, with, on the right, all the salient points—St. Nicholas, All Saints, the Castle, &c. Famous old Norham accompanies the Tweed, looking down the stream, which, by the way, is too narrow, and the sun is certainly too low in the sky for this aspect, having descended behind the ruin, which must be certainly must be south or east. Then there are "The Dart;" two of the Medway, one with, of course, Rochester Castle, and that bridge, now no more, which every English landscape-painter has at least sketched; the mouth of the Humber, rich with a Dutch galliot—here we look seaward, with the distant docks on the left, and Grimsby on the right, in the distance; but we think the indication is nearer than the truth. "Moor Park, the Colne," and another, illustrating the Medway, "Stangate Creek," a very brilliant agroupment of boats and figures. Here are the drawings made for the "Liber" which may at once be said to be *et studiorum et veritatis;* the "Jason," a composition with a bridge in the middle distance, a production of a grand classic character; "Bridge and Cows," more domestic and Gainsborough-like; "Solitude;" the "Little Devil's Bridge;" "Hindoo Devotions:" "Thun, Switzerland;" "Bonneville, Savoy"—this place, which is but seldom painted, is on the road to Chamouni; "Mount St. Gothard;" "Inverary Castle;" "The Coast of Yorkshire;" "Hind Head Hill," &c. Of the French series there are several on the shores of the estuary of the Seine—"Honfleur" two views one above the harbor, looking over the town to the Côte de Grace, another looking up the river. A charming view of Quilebœuf, from which Turner painted one of his noblest works; two views of "Tancarville;" one of "Harfleur," looking towards Havre, and showing the richly fretted spire of the church, which we have always considered the most elegant specimen of architectural *bon-bonnerie* in Europe—attributed, of course, *aux Anglais*, as everything extraordinary in Scotland is to the fairies. Of Rouen there are several views, in which the cathedral on one hand, and the Quai D'Harcourt play, perhaps, exaggerated parts. The Italy vignettes are so familiar to us in spirited black and white that we may confess to a little disappointment in seeing the originals; it is, however, on the whole a most gratifying exhibition; yet we long to see some of those touched proofs of which there are stores in the portfolios, because Turner kept all he touched upon.

From the Liverpool Photographic Journal

PHOTO-CHEMICAL RESEARCHES.

The following abstract is taken from the Proceedings of the Royal Society, (vol. viii., No. 24). It contains an account of the important joint labors of "Professor Bunsen, of Heidelberg, and Henry Enfield Roscoe, B.A., Ph.D." As these researches led to the construction of an instrument to record certoin chemical work done by the solar rays, and also serve, it is believed, to explain some obscure photographic phenomena, we do not hesitate about laying them before our readers.

"Chemical affinity, or the force which regulates the chemical combination of two bodies, is like all other forces, a certain definite quantity. Hence it is erroneous to say, that under different circumstances the same body can possess different affinities; more correctly we should say, that in the one case the bodies are able to follow the chemical attraction of their molecules, whilst in another case opposing forces render this combination impossible. These opposing forces may be considered as resistances similar to those exerted in the passage of electricity through conductors, in the distribution of magnetism in steel, and in the conduction of heat. We overcome these resistances when by agitation we increase the formation of a precipitate, or by insolation effect a decomposition.

"We call the act by which these resistances to combination are lessened, and the formation of a chemical compound promoted, 'chemical induction;' and we specify this as a photo-chemical, thermo-chemical, electro-chemical, or idio-chemical, according as light, heat, electricity, or pure chemical action is the force which promotes the combination.

"The phenomena of photo-chemical induction are particularly interesting, as affording starting points from which we may gain a knowledge of this mode of action of affinity.

"That on exposing a mixture of chlorine and hydrogen to the light the action does not commence to its full extent at once, was observed by Draper in 1843. An explanation of this fact was given by the supposition that the chlorine underwent on insolation a permanent allotropic modification, in which state it possessed more than usually active properties. This explanation is, as we shall show, erroneous, and the whole phenomenon is caused by the peculiar action to which we have given the name of photo chemical induction. When the standard mixture of chlorine and hydrogen is exposed to a constant source of light, no action is at first perceptible, after a short time, however, the action becomes visible, and gradually increases until a constant maximum is reached. Experiments made with different amounts of light from different luminous sources, showed that the times which elapsed from the beginning of the exposure until the maximum was obtained, varied very much, according to circumstances. In one case the maximum action was reached in fifteen minutes, in others after an exposure of three or four minutes. The first action was in one case visible after six minutes' insolation, in others after one minute, whilst in some experiments a considerable action was observed in the first minute.

"The condition modifying the action of the induction which we first examined, was the action of the mass of the insolated gas. From various experiments, it was found that the duration of the induction increased with the volume of exposed gas, (by constant amounts of light), and curves have been drawn, representing the increase of the induction for the various volumes of gas employed.

"We next examined the dependence of the duration of induction upon the amount of light to which a constant volume of gas was exposed, and experiment showed—

"1. That the time necessary to effect the first action of the photo-chemical inductions decreases with increase of light, and in a greater ratio than the increase of light.

"2. That the time which elapses until the maximum is attained also decreases with increase of light, but in a much less ratio.

"3. That the increase of the induction proceeds at first in an expanding series, attains a maximum, and then converges when the true maximum action is attained. The law regulating the increase of the induction by increase of light, we have rendered visible by curves.

"The results of these experiments suggested the question, Is the condition of increased combining power, into which the mixture of chlorine and hydrogen passes by insolation, permanent, or is it confined to the time during which the gas is exposed to light? In order to determine this question, the sensitive gas, which has stood for some time in the dark, was exposed to a constant source of light, and the time noted which elapsed before the maximum action was reached; the apparatus was then darkened for one minute, and then again insolated, and the time watched until the maximum action was again observed. These observations were repeated several times, each period of darkening being longer than the preceding. Thus conducted, the experiment led to the important conclusion, that the resistance to combination overcome by the influence of the light is soon restored when the gas is allowed to stand in the dark. Curves expressing the effect produced on induction by darkening, and by exposure to light, have been drawn.

"We have explained the fact, that the mixture of chlorine and hydrogen does not combine in the dark, by the supposition of the existence of a resistance to combination which is overcome when the gaseous mixture is exposed to light. This resistance to combination can be increased by various circumstances. The presence of a very small quantity of foreign gas in the standard mixture of chlorine and hydrogen is sufficient to cause the resistance to be increased to a very great extent. An excess of $\frac{3}{1000}$ of hydrogen over that contained in the normal gas, reduced the action from 100 to 38.

"In these experiments we have to do with the purest form of the so-called catalytic actions, to which the photo-chemical phenomena are closely related. The quantative estimation of the relations which exist in the phenomena of contact, between the mass of the substance, the time and other modifying conditions, has not as yet been possible, owing to the absence of any case in which these relations are exhibited in their simplest form. Our method of photo-chemical measurement points out a direction which promises to afford interesting results concerning these quantative relations; but in this communication we restrict ourselves to the consideration of these phenomena in so far as they influence the action of photo-chemical induction, intending on a future occasion to enter more fully into the new field of research indicated.

"The contact action of foreign gasses is still more strongly seen in the case of small quantities of oxygen. This gas, when present in quantities amounting only to $\frac{5}{1000}$ of the total volume of gas, diminishes the action from 100 to 4·7, whilst $\frac{13}{1000}$ reduced the action from 100 to 1·3. Excess of chlorine acted in a similar manner though not to so great an extent, $\frac{10}{1000}$ of this gas reducing the action from 100 to 60·2, and $\frac{181}{1000}$ from 100 to 41·3. On examining the effect of small quantities of hydro-chloric acid gas upon the induction maximum, we found, fortunately for the accuracy of the indications of our instrument, that an amount of $\frac{13}{1000}$ of this gas does not produce any appreciable effect on the action of the induction. Uninsolated gas was found to act similarly on the normal mixture, the admission of $\frac{6}{1000}$ of non-insolated gas reducing the action from 100 to 55. Curves have been drawn, representing the relation between the action from 100 to 55. Curves have been drawn, representing the relation between the action and the amount of foreign impurity introduced. Several series of experiments also showed that a mixture of chlorine and hydrogen, which was so nearly pure that no alteration of the maximum action was observable, was longer in attaining the maximum than the perfectly pure gas; hence the duration of the induction serves as an exact measure of the absence of all foreign gases in the standard mixture.

"An explanation of the laws of photo-chemical induction derived from the above-mentioned experiments, might easily be found in the assumption that the chlorine or the hydrogen, or both gases, undergo, upon exposure to light, a change similar to that between common and ozonized oxygen, or that these two gases can, under certain circumstances, be invested with active, and, under other circumstances, with passive properties. If this hypothesis be true, each gas must undergo this peculiar modification when separately exposed to the action of the light. That this is not the case was shown by the following experiment:—The two gases were separately evolved, and each led through a long glass tube, in which they could be separately exposed to the action of diffuse and direct sunlight. After this exposure, the gases passed through a connecting tube into the apparatus, in which a constant source of light gave the duration of the induction. Thus alternately insolating and darkening the separated gases, we observed the effect on the gases subsequently mixed and exposed to lamplight. No difference was perceptible in the duration of the induction between the gases previously insolated and those evolved in the dark. Hence we may conclude, that the light does not effect a permanent modification, either of the chlorine or hydrogen, but that the combination produced by the light must depend on photo-chemical action affecting only the increasing attractions of the chemically active molecules.

"All the curves representing the increase of the induction under various conditions have a common form, and a point of flexure at which the maximum increase occurs. In order to determine whether this common property of the curves arises from the general mode of action of affinity, or whether the light plays an essential part, we have made experiments upon idio-chemical induction, *i.e.* action in which pure chemical attractions alone effect the alteration. For this purpose we employ a dilute aqueous solution of bromine with tartaric acid, which mixture, when left to itself in the dark, undergoes decomposition, hydrobromic acid being formed. By determining the amount of free bromine contained in the liquid at different times, we became acquainted with the rate at which the decomposition occurred. Analysis showed that the amount of hydro bromic acid formed was not the same in equal spaces of time; and curves representing this increase were found to have the form obtained for the photo-chemical induction. Hence the cause of this maximum increase appears not to lie in any peculiar property of light, but rather in the mode of action of affinity itself

"One of the many interesting applications of the laws of photo-chemical induction relates to the phenomena of photography. As an instance of this application we cite the remarkable observations of Becquerrel, which induced him to assume the existence of certain rays which can continue, but not commence, chemical action. In order to explain the phenomenon observed by the French physicist, we do not need to suppose the existence of a new property of light, as the facts are easily explained by the laws of photo-chemical induction; and we are satisfied that these relations, which we have examined only in the case of chlorine and hydrogen, occur in a slightly modified form in other photo-chemical processes.

"Having determined in this part of our investigation the most important phenomena of photo-chemical induction, we shall in the next section consider the laws which regulate the chemical action of light after the induction is completed."

From the Liverpool Photographic Journal.

THE STEREOSCOPE.

The following is a complete report of the remarks of Mr. Malone on the subject of the stereoscope, as made by him at the meeting of the London Photographic Society on the 7th ult., with Mr. Shadbolt's reply:—

Mr. MALONE.—I made a few remarks at our last meeting, and I have little more to do than to repeat these remarks, supporting them by additional statement of facts. A few weeks since I had occasion to visit Paris, and I then paid a special visit to M. Ferrier, and also to MM. Soulier and Clouzard, these gentlemen being the chief makers of the transparent slides generally on sale in this country. They informed me, that as a rule they placed their cameras wide apart in taking their views, and quite ignore the proceeding of only placing the lenses the distance of the two eyes apart. In a well known view taken from the top of *Notre Dame*, their cameras, I was assured, were placed as far apart as the width of the tower admitted, the distance being about 15 *metres*, or more than 15 yards English. Again, as a rule, the pictures of MM. Soulier and Clouzard are taken so that the axes of the cameras converge to a point at about the middle distance, or even to some point beyond. Thus the angle is not a great one, perhaps from three to six degrees, varying with the subject; still the axes converge. Another *fact* to which I wish to direct the attention of the meeting is this: those who insist upon taking pictures with the cameras placed only the distance of the two eyes apart, do not understand the instrument invented by Professor Wheatstone. They doubtless understand some use of their own, to which they put Professor Wheatstone's instrument, but, I repeat it, they quite misunderstand the object of his invention. However, apart from all speculation, and as a matter of fact, it is found that if you take a picture from the tower of Notre Dame, for example, with the lenses placed apart only the distance of the two eyes, you do not get that solid representation,—that model-like appearance, if you will,—which at once creates surprise and pleasure, in the beholder of pictures taken from widely separated points. And here let me observe, that those who take views of a *near* object, with cameras side by side, work under a considerable angle as respects that object, and they so far fulfil Professor Wheatstone's law; but if they retire far back from that object without widening the cameras, they lessen the angle and fall into error they were at the outset free from. To get the same angle you must necessarily widen the cameras. Take as a test-object a life-size statue placed on a square pedestal: if you do not separate the cameras enough, you will, at a certain distance, get distortion of the base in a certain direction; now place the cameras unduly apart, and you will find distortion in the converse direction: the true perspective representation evidently lies somewhere between. Moreover, if you do not separate widely, when at a distance from your object, you will have the solid appearance shrunk to a *bas-relief.* In a landscape you have a mixture of objects; those near at hand will be viewed under a considerable angle, and therefore will be represented comparatively solid, though the cameras are near together, but then distant objects will be perfectly flat. The amount of separation and of convergence must in such cases be a matter of great judgment, and that is the opinion of Professor Wheatstone and the French operators. No set of rules can be given to suit all cases; all will depend on the object in the picture which is wanted to be in the best condition as to true solidity. Yet one rule will remain unalterable: whenever your chief object is distant, and the foreground is unimportant, you must separate your cameras wider and wider as the distance increases, or fail to get that true solidity which I am sure a majority of observers will prize. A view on the table of the well-known Egyptian colossal figures appears to me to err in this respect. There seems to be nothing in the foreground to forbid a wide separation of the cameras: had there been, of course a compromise must have been made. To ask for very near and comparatively very distant objects at once solid and free from distortion, is to ask for an impossibility.

Mr. Shadbolt.—Perhaps I may be permitted to reply to Mr. Malone, who professed to state facts, but stated opinions and called them facts. I maintain, as a fact logically deduced from the laws of the science of optics, that if you move the camera *anything* more than the distance between the two eyes, you do not reproduce nature. Many *say* they want to produce nature, when, *in fact*, they want to produce something else. You may by exaggeration of distance produce a very pretty and effective picture, but it *is not nature*. From the top of Notre Dame in Paris, the distant objects do not present themselves to the eye in what Mr. Malone calls stereoscopic manner, but which I presume he means solidity. I understand stereoscopic pictures to represent a solid object as it appears in nature, but very distant objects do not appear solid.

From the New York Daily Times.

ACADEMY EXHIBITION.

SECOND NOTICE.

The name of a work of art, if it must have a name, should be an inevitable necessity. A picture, it is true, may very well dispense with a name, if it be a really complete picture, for it will either tell its own story, or having no particular story to tell, will leave us to name it according to our feeling or our fancy. Hang Millais' "Order of Release," for instance, in any exhibition, without a name, and who could hesitate to baptise it on the spot? A single glance reveals the meaning of the scene—the dismal tragedy of the past, the blessed rapture of the present moment. The highland dress, the wounded arm, the fettered ankles of the stately prisoner—the passionate happiness that lights up the earnest features of the woman folded in his close embrace,—the official precision with which the military turnkey eyes the precious paper put into his hand by the triumphant wife,—these are enough. They bring back to you Culloden, and the red "Field of the Slain,"—they bring before you the little cabin which waits to receive its rescued owner back again into the bosom of his native hills and the freedom of the Highland air.

Or take, in another kind, Turner's wonderful painting of the "Old Téméraire." Who cares to know just what ship that is which moves so slowly down the broad and gleaming Thames, her great yards squared without a sail—her ports yawning, empty of the thunders that once shook the sea, her tall masts widowed of ensign they had borne so proudly over all the deep; no longer a bulwark of Britain manned with "hearts of oak," but a helpless, decrepit hulk, drawn onward by a paltry puffing steam-tug to its doom? There is a pathos in all the picture—in the declining light of day and the sleeping tide as in the mournful hulk that was once so terrible in its beauty; which is the picture's very soul, and this the picture yields you, name it as you will.

But if an artist insists upon giving a name to his work, let him be careful what he does. His name will in nine cases out of ten betray him. It will test the reality of the thought which gave birth to his picture in the intensity of the study which has developed it. And this is an ordeal through which few men can pass unscathed. "A rose by any other name might smell as sweet," perhaps, though we have always been inclined to doubt the truth of that proposition when it is applied to the actual rose, and to the actual rose-smelling mortals of the nineteenth century, who have been educated from their youth up, to associate with the name of a rose those delicate anticipations, those almost sensations of the mind, which go far to determine the frail sensations of the body in all refined and cultivated constitutions But a picture called by a name which does not and cannot belong to it, loses a portion of its positive value. See in our exhibition, for example, Mr. Leutze's "Rose of the Alhambra." (No. 50.)

Every one who is familiar with Mr. Irving's charming story, (and to all others of course, the name of the picture must be a profound enigma,) naturally looks for a scene sparkling with vivacity and scintillating with humorous suggestions. He knows that the scene which Mr. Leutze has undertaken to represent, is not a serious, but a serio-comic scene. A hypochondriac King brought to his senses by the magic persuasions of a silver lute in the hands of a lovely young girl, called the "Rose of the Alhambra," and jumping up out of the catafalque, in which he had compelled his Queen to lay him, because he chose to believe himself dead, certainly is not a tragical figure. But Mr. Leutze's reviving monarch looks as if he had verily come back from the dead, and all the assistants look as if they believe he had. The Queen who got up the farcical solemnity, is fainting in the arms of her attendants, a proceeding only to be excused by the supposition that she had hoped to carry the joke out to the end, and to fairly rid herself of a half-witted incompetent spouse. The monks about the *catafalque* are praying with amazing vigor, and seems to be entirely overcome. The whole group suggests one of the most solemn and affecting incidents possible. The contrast between the name and the character of the painting is so violent as to become absurd. In thinking on it we hardly notice minor incongruities of detail which yet abound on the canvass. Why, for instance, is the "Rose of Alhambra" represented in a dress which resembles only that of the Moorish maiden familiar to the frequenters of the masked balls of Paris? The Rose was a Christian Rose, and respectably brought up. She gave concerts, it is true; but we have no reason for supposing that she got herself up in such a fantastic guise for the purpose of attracting the *pesetas*.

M. Leutze is a clever painter, but it must be owned that he paints very bad pictures—pictures which no man less clever than he could venture to paint. There are grave defects in the handling of this work. And it seems to have suffered already a degradation of tone which does not improve its effect. In this respect the No. 473 of the same artist, otherwise commonplace enough, has the advantage of the "Rose of the Alhambra."

Mr. Rossiter is another artist of repute, who falls into traps of his own setting. We have already said our say of his "Wise and Foolish Virgins," and of one or two other pictures exposed by him. His "Giorgione and his friends going to the Lido," (No. 98) which strikes us as, on the whole, his best picture of the year, has this capital defect of nominal insignificance. Why Gicrigione? Giorgione was a man of marked and intense character, if ever there lived such a man in this shadowy, uncertain world. Nor was his brief life uneventful. But what is there in this group of young men and women richly dressed which conveys one solitary notion of Giorgione's life and conversation to the mind? Even his face is not to be seen in the boat, yet his face was one worth painting carefully. The picture, too, is unequally handled. The sky on the right hand is deplorably crude and false—the water glassy and exceeding substantial. The gondola is not, indeed, "a painted ship upon a painted ocean," but it looks wonderfully like the boats one sees on French clocks, set upon waves of a vitreous composition. The reflections are reflections seen in a solid substance, not the delicious wavering reflections natural to such a medium as the green shallows of the Guidecca at such an hour. But a fine feeling for light is shown in the distance, and the *pose* of the gondola is capital. There is great merit, too, in the figure of the Capuchin rowing off to ask alms for his Convent and casting a true friar's glance behind him at the gay ladies in the gondola of the great artist. The same sort of ineffectual, imperfect ability distinguishes the Modern "Christianity" (No. 61,) which we took at first to be the marriage ceremony of an old English cavalry general—but must suppose now to be intended for a composition to which Tuscany largely contributes. Very different from all these pictures are those of Mr. Hunt, which, though they do not quite bear out the promise of his last year's "Marguerite," show themselves at once to be what they were meant to be—closely studied, strongly felt, thoughtfully finished elaborations of ideas which were born sharp and clear in the artist's mind. The "Bouquetiére" (No. 88) is one of the most attractive, and if we may use such a word in such a connection, one of the most *retentive* pictures in the Exhibition. You recur to it again and again with ever-increasing satisfaction. It is a *bouquetiere*, and it is nothing more. It is just a poor child, seated under the lee of an old house, with her lap full of flowers, which she would be only too glad to sell if you would buy them. Her face is full of the quiescent misery of her class, a misery tinged with the inherent sweetness of her own nature. It is such a face as holds poets in their walks about the City streets; a face, telling in its tale of surpressed emotions, undeveloped instincts, imperfect perceptions, the ancient story of the millions of mankind. See, too, how wonderfully the canvas is covered! What figure will you find in these rooms so accurately, yet so unostentatiously modelled? Where will you look for finer truth of tone—for finer harmonies of coloring? There is knowlege enough in the treatment of that old scraped brick wall, to turn the heads of half the rash persons who have flaunted their flowery imbecility, in our eyes faces upon these walls. Yet one regrets the intense mannerism of this picture, and of all Mr. Hunt's pictures. Because it shows that he is still where he was last year; still looking precisely such effects as he likes in the pictures of Millet as he learned in the *atelier* of Couture, without so much as trying to find any other effects in heaven or earth worth painting. Every picture which he has this year exposed shows the same characteristics. The "Belated Kid," (No. 519,) in which the eyes are arrested by an extraordinary quality of atmospheric truth, is almost identical with the *Bouquetere* in character. So also is the "Sheep Pasture," (No 70,) (which is moreover deformed by a ridiculously impossible sky;) and the "Girl at the Fountain" (No. 39) strikes a different note but on the same key. As a piece of modeling, this latter picture is singularly worthy of attention.

Clearness of conception, too, belongs to Mr. Ehninger, who decidedly *has* improved upon his pictures of last year. His "Foray" (No. 484) is one of the very cleverest and most satisfactory pictures in the rooms. It is better than its name. For it is evidently not a "Foray," in general, but a Particular Puritan Foray, as one easily perceives by a glance at the face of the horseman who pores over his Bible with such a sanctimonius and satisfied air, and by the thoroughly *rounded* character of the dismounted trooper who is leading his horse and driving before him a cow and a calf most righteously "raised" from the dairy of some diabolical "malignant." Mr. Ehninger has treated his subject with the utmost simplicity, but with as much of force as of simplicity. His truth in the details of substance is not more remarkable (as in the case of so many other artists of this day it is apt to be) than the severe accuracy and artistic grace of his composition. In truth there is not a picture of incident in the exhibition so well composed as this. The landscape which is from the pencil of Mr. Mignot, is unfortunately neither equal to Mr. Mignot's reputation, nor to Mr. Ehninger's figures. It is a gracefully conceived but very unequally painted bit of willowy marsh land, through which a brook runs, with a distant glimpse of a rich country in the sunset light. The distance is very happily treated, and so, too, the light which drowses through the trees upon the group of foragers. But the trees, themselves, are rather sketchily handled, and the lichenous rock in the foreground is picturesquely, as well as geologically false. It is in fact no rock at all, and is, or ought to be, quite put out of countenance by the admirable reality of the cattle coming down to the stream. Mr. Mignot, let us hope, will do fuller justice to his talent in South America under the influences and in the society of Church. He has, indeed, a landscape, "Autumn," (No. 281,) in this exhibition which is a more favorable illustration of his delicate and peculiar but somewhat dangerous facility. Mr. Ehninger's other pictures of the year are less remarkable than the "Foray," which, as we have said, is a picture quite *hors de ligne*; the "Love me Love my horse" (No, 430) wanting originality, though very effective and characteristic in treatment; and the "Michael Angelo in his Study," (No. 519,) exhibiting only the very fine qualities of the artist on a theme and upon a scale hardly fitted to afford them their just development. Mr. Ehninger, however, decidedly *does* gain in regard to individuality of treatment, as Mr. Hunt does not, and as so few of our artists seem to dream of doing.

Mr. Edwin White ought not to be of this number, for he has rare gifts, and his pictures are always note-worthy; but we judge that he has not yet made up his mind to his own theory of colors. His "First New-England Thanksgiving," with very high merits as a composition, (the feeling of the whole group is excellent, and the boy in red whose back is turned to us, on the right hand, is a singularly expressive figure), is uncertain, cold and hard in color. It is, moreover, very *flat*. This is a common fault with Mr. White, and appears again in his "Hagar," which, however, is hardly finished far enough to justify positive comment. At least, however, Mr. White appears to know what it is that he means to paint, and why he means to paint it, which are two important steps taken towards painting something which men and women may take the trouble to see and to think about. And we wish Mr. White, therefore, all success in the difficult task which he has undertaken of painting a historical picture which shall please both himself and a "Legislative Committee" for the State of Maryland. For the chances are that five "Legislative Committees" out of six would prefer the incomprehensible uproar labeled No. 360, in the catalogue of this Exhibition, and purporting to represent the retreat of the "embattled farmers" from Bunker's Hill (why "Breed's?" Breed is dead and forgotten, but Bunker is immortal, and can't be killed by any possible correction), to all the "Bouquetières," "Belated Kids," "Forays," and "Andes of Ecuador" in the world. In fact, there are a number of pictures in the Academy Rooms which we should be glad to dismiss with the general criticism, "suitable for Legislative Committees and omnibus doors." For what possible use can there be in criticising the pictures of painters who can't by any chance ever paint any better, or much worse than they already do? One can be very facetious over a bad picture, and there are few funnier things to be found in a long day's stroll than some of the canvases which adorn the walls of this year's show. But then the people who paint such pictures don't think they have been perpetrating jokes, and they certainly would not be made the happier by our sprightly severity. If they could be made the *better* by it, well and good! But as that is past praying for, why inflict the fate of Marsyas on a bag-piper or an organ-grinder? We are not quite sure whether it will profit Mr. Peele for us to tell him that he puts too much mud upon his palette to make his tints pleasing. But we like his "Sound of the Shell" (No. 399) so much—there is so much simple, sweet and real feeling in the conception of that flaxen-haired little fisher-girl's face, tremulously alive with the wonder of old ocean's voice sounding in the heart of his lost "little treasure," that we choose to believe something may come of our protest against such inconceivable confusion of color as Mr. Peele has dashed into her dress, and such feebleness as destroys his background of cliff and sea.

A harmonious instinct leads us to the same artist's "Music of the Reeds" (No. 529,) which has fewer faults and fewer merits, too, than its companion work. The two paintings seen in contrasted combination make up, however, a very pleasant duet. The coloring of the No. 529 is impaired by the same thickness and murkiness of tone upon which we found occasion to remark in speaking of the "Sound of the Shell." This is particularly true of the draperies of the figure and of the trees —the carnations being on the whole more pure and pleasing than those of the No. 399, and the distance full of feeling and of fidelity to Nature. The characterization of this little brown haired rustic maiden, like that of her flaxen-tressed sister of the shore, leaves very little to be desired. If we wished to ornament our palatial residence with a series of characteristic pictures of children, we should count upon such an artist as Mr. Peele with confidence.

Hardly so upon such an artist as Mr. Gignoux, whose otherwise fine landscapes are similarly defective in regard to this special quality of typical truth. Mr. Gignoux paints what he sees very well, but he does not see so well what he should paint.

Take, for instance, the "View on the Saguenay," No. 427, painted for the late Lord Ellesmere, and destined to revive upon the walls of Bridgewater House the splendid *souvenirs* which all travellers must bring away from the wildest and most magnificent of Canadian, and, for the matter of that, of American rivers. Who that remembers that wonderful stream, with its grand sweeps and breadths of duskily gleaming waters—with its stupendous barriers of rock, and its stately fringes of "forest primeval," will recognize the "Saguenay" in this picture of purple cliffs and naked pines, wherein the river is hinted at as an accident, and a bit of the shore scenery made the prominent subject of the artist's skill? The cliffs and the pines are treated, certainly, with a great deal of power, though their effect would have been improved by a slight suggestion of atmosphere—but the picture is not in the least a satisfactorily characteristic picture. The same criticism must be made, with very little less vivacity, upon Mr. Gignoux's picture, No. 476, of the "Seven Falls" of Canada—in which, moreover, we have to question the water. In an allegorical representation of Goshen, for instance, or of any other land which "flows with milk and honey," this cataract of cream might be legitimate enough. We don't believe it is to be seen at the "Seven Falls."

Here, after all, is one of Mr. Kensett's leading merits. His scenes are always recognizable, and even if you do not know their prototypes, you are struck at once by their unquestionable reality. You feel that if you saw the places which Mr. Kensett paints, you should never forget them. How true this is of such a picture as his No. 453. The waves of the sea are "put in" a little *dramatically*, perhaps; but how excellently composed, how complete a unity the picture is! Mr. Hart, again, has something of this same priceless power. His "October Afternoon in the Tropics," (No. 185) is one of the most individual landscapes in the collection—pervaded with a true and tender autumnal sentiment—a well-conceived, harmonized, thoroughly agreeable picture—very much such a picture as we can fancy that Durand would paint were he to lose a little knowledge and to gain a little inspiration. There is vitality, too, in another landscape, not far from this of Mr. Hart's. "Nightfall in the Wilderness," by Mr. Stillman (No. 172)—with something of affected mannerism unites a singular sincerity of feeling and close fidelity to natural effects. It reminds us of all we like and all we dislike in Wordsworth's sonnets upon scenery. Mr. Stillman's picture has a neighbor, too, in Mr. Dana's "Waiting for the Fishing-Boat," (No. 179) which must not be passed over without notice. This is a scene on the Norman coast, and shows a true feeling for sea-shore effects which is as delightful as it is rare, among our artists. The treatment is rather conventional, but the picture is a picture of promise.

For our other landscapists, from whom we had hoped much on looking over the catalogue, we have not received all that.we hoped for. Shattuck, Colman, Hotchkiss, all clever and advancing artists, have disappointed us this year by their evident cliqueism. "That way destruction lies," and we can't afford to lose such pencils as these. Mr. Gifford, whose pictures of former years we remember with interest, sends from England one lovely little cabinet picture of Stratford-on-Avon, (No. 447) which is a temptation to shakespearian eyes and a peril to poetic pockets. It is, indeed, worthy of a much abused epithet, now grown almost ridiculous, though nothing can be prettier or more appropriate than the feeling it portrays when applied to such a picture—"it is really *a gem*." For a gem is something which you wish to associate with yourself and your daily life, and one would like to hang such pictures as this in the cosiest nook of his library. Not so most of this year's portraits!

Perhaps there exists no intrinsic reason for the dreariness of exhibited portraits. In fact, we are sure that no such reason exists. For, after all, what is more worthy of the painter's art than a human face, with all the wonderful history of a human soul written out upon its balanced proportions! Nevertheless, exhibited portraits are dreary, and those of this year do form no exception to the sad rule.

There are foolish portraits—portraits so simpering, so conscious, so imbecile of expression, that you blush for your kind in looking on them, and feel as one feels when he hears a speaker trip in his discourse and stammer for half an hour, blundering onward through a maze of verbless nominatives, and of unlimbered antecedents. There are insolent portraits, portraits that provoke you to put up your *lorgnette* and prepare for an exchange of cards. There are insignificant portraits; portraits of the people who always lose their seats in the theatre, and never get up to the ticket office of a railway when there is a full train starting; there are ridiculous portraits—portraits of people who bought new suits of clothes to be painted in, or put on their Winter garments at Midsummer—of people who strike attitudes impossible in ordinary life, or affect a *nonchalant* ease, odious upon the canvas. But of quiet, yet effective, earnestly studied and powerfully painted portraits, reproducing the true characteristics of a certain man or woman, there is, alas! a plentiful lack on most occasions, as there is upon the present occasion, no overflowing supply thereof furnished to us. On the whole, the best picture of this class (though not a pleasing one by any means), is Mr. Page's "Roman Mother and Child," (No. 543.) The tone of this picture is vexatious enough, but it is wonderfully colored, and drawn with infinite feeling and force. There is no mistaking *this* type. It is the proud Trasteverine face, the grand strong Trasteverine figure—in many ways a wonderful little picture—which renews our regret that Page's fine portrait of Browning should not have had a fair chance of being seen at the London Exhibition of last year.

Hicks has a single portrait—in fact, a single picture, (No. 459,)—which might have been called an apotheosis of Henry Ward Beecher. That emphatic and thorough-going divine appears on Mr. Hick's canvas in the aureole of a silver-gray glory, "sitting clothed and in his right mind," as it would appear, for his face has evidently been washed with unusual severity, and the whole man is redolent of soap and water, brushes and the toilet. It is an inanimate "feast of purification." Also, it is very clever, though a whimsical picture, and is modeled with very great power. Not so Mr. Elliott's pictures, which are singularly feeble and uneven; in tone and in treatment unworthy of his great and proved ability; nor do we much delight in Mr. Healy's most ambitious work, the "Portrait of a Lady," (No. 480.) The details of this picture are remarkably good, but the likeness is unsatisfactory, and the coloring crude and cold—altogether *not* a picture to be coverted by any admirer of the fair original, nor by an amateur of portraits in the mass. Mr. Huntington has done better. His portraits of Mr. Gulian C. Verplanck, (No. 86) and Mr. Mortimer Livingston, No. 110,) are not only capital portraits in the matter of resemblance, but very agreeable and life-like pictures. His "Earl of Carlisle," (No. 19,) is more common-place and conventional, though clever. Mr. Baker, as usual, paints like a successful limner, and young Mr. E. D E. Greene has made real progress towards a very high position in his art. His pictures (Nos. 55. and 274) are among the most earnestly studied in the Exhibition, and show a genuine feeling both for character and for color. He wants technical and anatomical knowledge, and a larger æsthetic philosophy alone to put himself among the peers. Mr. Faguani, whose eye is singularly faithful, and who rarely fails to seize a face, has this year given us some notable physiognomies, the most remarkable of which are those of Dr. Kane, (No. 269,) painted as the catalogue tells us, for Sir Henry L. Bulwer, and of Governor King (No. 124) The large group by this artist, of a mother and three children is so badly hung that we cannot judge of its merits. Of crayon portraits, which we do not much affect, and of minatures, which we almost alone among extant mortals *do* affect, the show is this year just respectable. Mr Lawrence has a number of indifferent portraits, and one capital one (No. 344) Mr. Rowse has several, and Mr. Stugg has two charming drawings, one of a lady (No. 349) and one of a boy (No. 351,) finished with refined grace and firm truth of design. The same artist, whose name ought to be at least as much honored in his own city as it is by an Athenian Censuis, gives us one or two delicious miniatures. His miniature of Mr. Mignot (No. 295) is worthy of the closest study.

Mr. George Freeman, well known on our Academy walls in former days, reappears with two characteristic miniatures (Nos.

299 and 300) which recalls the good old ante-photographic days. Of the aristocratic pastel we have some indescribable specimens, and one truly artistic and admissible example (No. 342) which is from the pencil of M. Saristinh, to whom we owe also certain crayon portraits, while some water-colors of great merit, by Mr. Philip, (particularly Nos. 320 and 323,) and some clever pencil-drawings by Messrs. Hill, make up the circle of the pictorial-art.

After all, as we began to do, we end. The Exhibition is the best the Academy has ever given us. For which reason we regret that the Committee have resolved to close it so soon—this day being the last. We should have been glad of another opportunity to dwell upon the merits and demerits of many pictures which we have noticed, but have had no time to mention. And we should have been still more glad to see again and again the pictures that we like. But all things must have an end and come to confusion; and the wise man will content himself with speeding the parting as he welcomes the coming guests of the year. A healthy, happy Summer, then, to all our artist friends—a profitable Winter, and a pleasant meeting for us all when the Spring comes back once more!

From the Boston Daily Advertiser.

ASTRONOMICAL PHOTOGRAPHY.

It is well known that luner distances from stars, whether measured by culminations, occultations, or otherwise, afford the most accurate data for determining the position, figure, magnitude and parallax of the Moon; indeed its complex motions which have at all times exercised the ingenuity of mathematicians, must ultimately be submitted to the test of observed positions among the stars, and any method which tends to insure increased accuracy in defining these positions must be valuable, and immediately applicable to the improvement of the lunar tables.

The near approach of the star Spica Virginis to the Moon on the evening of the 21st inst., presented a favorable opportunity for testing the practicability of obtaining photographic impressions of a star when in close proximity to the Moon, it being a question which had hitherto never been decided, whether the diffused light in the immediate vicinity of the Moon would not overpower the actinic effect of the star. Preparations were accordingly made at the Observatory of Harvard College for the purpose of deciding this point, and as Messrs. Whipple and Black, the eminent Daguerreotypists, to whom we have on former occasions been so much indebted, volunteered their services, a large number of photographic pictures of the Moon and the star in its neighborhood were obtained before and after the eclipse; even at the emersion, when the star was in apparent contact with the bright limb of the Moon, its image was distinctly formed.

The experiment was perfectly successful, pictures of the lunar mountains were impressed on the glass plates by the collodion process, simultaneously with that of the star, with minuteness and precision, serving as admirable points from which to measure the distance and position of the star.

It is a curious fact worth noticing that in every instance the impressions of the star were, if anything, *too strong*, the very reverse of what had been anticipated; The possible minimum time of exposure of the plate requisite for obtaining a visible impression of the object upon it could not at that time be ascertained, this is a favorable indication, as the shorter the time required, the more accurate will be the result.

It is evident that the application of Photography to Astronomy holds out the promise of a vast extension, whenever the sensitiveness of the process is sufficiently increased to give impressions of *telescopic* stars, to this our attention is now given as the condition apparently which can be most readily attained; should our efforts in this direction fall short of complete success, we must look for further improvement to an increase in optical power which would be equally certain to produce the desired effect. In the meanwhile, by the aid of our noble telescope enough has already been developed to render it certain that there is firm ground for pursuing the enquiry with a reasonable prospect of obtaining most useful results.

W. C. Bond.

Harvard College Observatory,
Cambridge, June 5th, 1857.

From the Liverpool Photographic Journal.

SPECIFICATION OF MR. FOX TALBOT'S CALOTYPE PATENT.

This specification relates to letters patent, "bearing date at Westminister the 8th day of February, in the 4th year (1841) of the reign of Her present most excellent Majesty." After the usual announcement of the object of the patent, the patentee says, "I do hereby declare the nature of my said invention, and the manner in which the same is to be performed are fully described and ascertained, in and by the following statement thereof, that is to say:—The first part of my invention is a method of making paper extremely sensitive to the rays of light. For this pupose I select the best writing paper having a smooth surface, and a close and even texture.

FIRST PREPARATION OF THE PAPER.

"I dissolve 100 grains of crystallized nitrate of silver in 6 ounces of distilled water: I wash one side of the paper with this solution with a soft camel-hair brush, and place a mark upon that side by which to know it again. I dry the paper *cautiously* at a distant fire, or else I leave it to dry spontaneously. All this process is best done in the evening by candle-light. The paper thus far prepared may be called for the sake of distinction, 'iodized paper.' This iodized paper is scarcely sensitive to light, but nevertheless it should be kept in a portfolio or some dark place till wanted for use. It does not spoil by keeping any length of time, provided it is kept in a portfolio, and not exposed to the light.

SECOND PART OF THE PREPARATION OF THE PAPER.

"This second part is best deferred until the paper is wanted for use; when that time is arrived, I take a sheet of the iodized paper and wash it with a liquid prepared in the following manner:—Dissolve 100 grains of crystallized nitrate of silver in 2 ounces of distilled water. To this solution add one-sixth of its volume of strong acetic acid; let this mixture be called A. Dissolve crystallized gallic acid in distilled water, as much as it will dissolve, which is a very small quantity; let this solution be called B. When you wish to prepare a sheet of paper for use, mix together the liquids A and B, in equal volumes. This mixture I shall call by the name of gallo-nitrate of silver. Let no more be mixed than is intended to be used at one time, because the mixture will not keep good for a long period. Then take a sheet of iodized paper and wash it over with this gallo-nitrate of silver with a soft camel-hair brush, taking care to wash it on the side which has been previously marked. This operation should be performed by candle-light. Let the paper rest half a minute, and then dip it into water; then dry it lightly with blotting paper, and lastly, *dry it cautiously* at a fire, holding it a considerable distance therefrom. When dry, the paper is fit for use; but it is advisable to use it within a few hours after its preparation. (Note—That if it is used immediately, the last drying may be dispensed with, and the paper may be used moist). Note second—Instead of using a solution of gallic acid for the liquid B, the tincture of galls, diluted with water, may be used, but it is not so advisable.)

USE OF THE PAPER.

"The paper thus prepared, and which I name 'Calotype paper,' is placed in a camera obscura so as to recieve the image formed in the focus of the lens. Of course the paper must be screened or defended from the light during the time it is being put into the camera. When the camera is properly pointed at the object, this screen is withdrawn, or a pair of internal folding doors are opened, so as to expose the paper for the reception of the image. If the object is very bright, or the time employed is sufficiently long, a sensible image is perceived upon the paper when it is withdrawn from the camera. But when the time is short, or the objects dim, no image whatever is visible upon the paper, which appears entirely blank. Nevertheless, it is impressed with an invisible image; and I have discovered the means of causing this image to become visible. This is performed as follows:—I take some gallo-nitrate of silver prepared in the manner before directed, and with this liquid I wash the paper all over with a soft camel-hair brush; I then hold it before a gentle fire, and in a short time (varying from a few seconds to a minute or two), the image begins to appear upon the paper. Those parts of the paper upon which light has acted the most strongly become brown or black, while those parts on which light has not acted remain white. The image continues to strengthen and grow more and more visible during some time. When it appears strong enough, the operation should be terminated and the picture fixed.

THE FIXING PROCESS.

"In order to fix the picture thus obtained, I first dip it into water, I then partly dry it with blotting paper, and then wash it with a solution of bromide of potassium, containing 100 grains of that salt dissolved in 8 or 10 ounces of water; the picture is then washed with water, and then finally dried. Instead of bromide of potassium a strong solution of common salt may be used, but it is less advisable. The picture thus obtained will have its lights and shades reversed with respect to the natural objects, viz., the lights of the objects are represented by shades, and *vice versa*. But it is easy from this picture to obtain another which shall be conformable to nature viz.:—in which the lights shall be represented by lights, and the shades by shades. It is only necessary for this purpose to take a second sheet of sensitive calotype paper, and place it in close contact with the first upon which the picture has been formed, a board is put beneath them and a sheet of glass above, and the whole is pressed into close contact by screws; being then placed in sunshine or daylight for a short time, an image or copy is formed upon the second sheet of paper, this image or copy is often invisible at first, but the image may be made to appear in the same way that has been already stated; but I do not recommend that the copy should be taken on calotype paper, on the contrary, I would advise that it should be taken on common photographic paper. This paper is made by washing good writing paper first with a weak solution of common salt, and next with a solution of nitrate of silver. Since it is well known, having been freely communicated to the public by myself in the year 1839, and that it forms no part of the present invention, I need not describe it here more particularly. Although it takes a much longer time to obtain a copy upon this paper than upon calotype paper, yet the tints of the copy are generally more harmonious and agreeable. On whatever paper the copy is taken, it should be fixed in the way already described.

"After a calotype picture has furnished a good many copies it sometimes grows faint, and the subsequent copies are inferior. This may be prevented by means of a process which revives the strength of the calotype pictures. In order to do this it is only necessary to wash them by candle-light with gallo-nitrate of silver, and then warm them; this causes all the shades of the picture to darken considerably, while the white parts are unaffected. After this the picture is of course to be fixed a second time. The picture will then yield a second series of copies, and a great number of them may frequently be made. (Note—In the same way that I have just explained that a faded calotype picture may be revived and restored, it is possible to strengthen and revive photographs which have been made on other descriptions of sensitive photographic paper, but these are inferior in beauty, and moreover the result is less to be depended upon. I therefore do not recommend them.)

"The next part of my invention consists in a mode of obtaining positive photographic pictures, *i. e.*—photographs in which the lights of the objects are represented by lights, and the shades by shades. I have already described how this may be done by a double process, but I shall now describe the means of doing it by a single process. I take a sheet of sensitive calotype paper, and expose it to daylight until I porceive a slight but visible discoloration or browning of the surface; this generally occurs in a few seconds. I then dip the paper into a solution of iodide of potassium of the same strength as before, viz., 500 grains to one pint of water. This immersion apparently removes the visible impression caused by the light (nevertheless it does not really remove it, for if the paper were to be now washed with gallo-nitrate of silver, it would speedily blacken all over.) The paper when taken out of the iodide of potassium is dipped in water, and then lightly dried with blotting paper; it is then placed in the focus of a camera obscura, which is pointed at an object. After five or ten minutes the paper is withdrawn, and washed with gallo-nitrate of silver, and warmed as before directed; an image will then appear of a positive kind, namely,—representing the lights of the object by lights, and the shades by shades. Engravings may be very well copied in the same way, and positive copies of them obtained at once, reserved, however, from right to left. For this purpose a sheet of calotype paper is taken and held in daylight to darken it as before-mentioned, but for the present purpose it should be more darkened than if it were intended to be used in the camera obscura. The rest of the process is the same. The engraving and the sensitive paper should be pressed into close contact with screws or otherwise, and placed in the sunshine, which generally effects the copy in a minute or two. This copy, if it is not sufficiently distinct, must be rendered visible or strengthened with the gallo-nitrate of silver, as before described. I am aware that the use of iodide of potassium for obtaining positive photographs has been recommended by others, and I do not claim it here by itself as a new invention, but only when used in conjunction with the gallo-nitrate of silver, or when the pictures obtained are rendered visible or strengthened subsequantly to their first formation.

"In order to take portraits from the life, I prefer to use for the object glass of the camera a lens whose focal length is only three or four times greater than the diameter of the aperture. The person whose portrait is to be taken should be so placed that the head may be as steady as possible, and the camera being then pointed at it an image is received on the sensitive calotype paper. I prefer to conduct the process in the open air, under a serene sky, but without sunshine; the image is generally obtained in half a-minute or a minute. If sunshine is employed, a sheet of blue glass should be used as a screen to defend the eyes from too much glare, because this glass does not materially weaken the power of the chemical rays to affect the paper. The portrait thus obtained on the calotype paper is a negative one, and from this a positive copy may be obtained in the way already described.

I claim, first—The employing gallic acid or tincture of galls, in conjunction with a solution of silver, to render paper which has received a previous preparation, more sensitive to the action of light.

Secondly—The making visible photographic images upon paper, and the strengthening such images when already faintly or imperfectly visible, by washing them with liquids which act upon those parts of the paper which have been previously acted upon by light.

Thirdly—The obtaining portraits from the life by photographic means upon paper.

Fourthly—The employing bromide of potassium of some other soluble bromide for fixing the images obtained. [Here follow some processes for producing images on metals, but these were subsequently disclaimed as being more of a scientific than a practical nature].

"In conclusion," the patentee observes, "I do not confine myself to the precise weights and measures of the substances employed in those processes which I have mentioned, since *they may be varied according to circumstances*, but I have mentioned those which I have found on the whole to be the most convenient."

Dated "This 29th day of July, 1841," and enrolled the 7th day of August, in the same year.

The above has been carefully transcribed by ourselves from a "chancery copy" and may therefore be relied upon as an historical piece which we have presumed many will like to possess, whether for the purpose of experiment or of discussion. We may observe that although the most strenuous efforts were made at the trial (Talbot *v.* Delaroche), to set aside the claims respecting the "calotype" paper, yet the jury decided that Mr. Talbot was the true inventor of the entire process which now with greater justice than ever should universally bear his name.

From the Jour. of the Phot. Soc.

ON LUNAR PHOTOGRAPHY.

BY THOMAS GRUBB, M.R.I.A. &C.

"The attempts hitherto made to obtain good photographs of our satellite appear not to have been as successful as could be desired, nor can this be a matter of surprise when the attendant difficulties are considered.

"The interesting paper of Mr. Crookes on the subject, republished in the last two numbers of the London Photographic Journal, gives the details of the *modus operandi* by which he has produced perhaps the best lunar photographs extant. This communication will be nearly confined to a consideration of what may be termed the *instrumental* portion of the subject, or, in other words, the apparatus (in addition to that required for ordinary photography (for obtaining lunar photographs.

"Before entering upon the more immediate subject of my paper, I would direct the attention of those interested in the *science* of photography to the apparently anomalous fact, as experienced both by Mr. Crooks and myself in our respective telescopes, that the actinic focus (for the lunar rays) is *longer* than the visual. It is generally understood that a compound object-glass made as nearly achromatic as possible, will have its actinic focus *shorter* than the visual, and there has been some discussion on the value of having (or not having) these two foci brought to coincidence, which some practical persons state they effect, by making their combinations a little over-corrected for the visual rays or colors. I have carefully examined some of these combinations, the works of first-rate English artists, and have been surprised to find them exhibit signs of *under*-correction of color, rather than of over, while some view lenses I made for my own use, and well balanced in color (visually), show no appreciable difference between these foci.

"Theory certainly appears to indicate a slight (but only slight) over-correction for color as required to make the chemical and visual foci coincide. Why then does it happen that Mr. Crookes' and my own experience indicate the contrary? It cannot be ascribed to errors either of instruments or of observation, as the telescope is a far more delicate test than an ordinary photographic combination. That used in Mr. Crookes' experiments has, I believe, a Munich object-glass of fine performance; and that used by myself is, I apprehend, able to compete with it in quality, and much larger in size, being about $22\frac{1}{10}$ inches in aperture and 20 feet focus. It is only a few days since I ascertained the facts to be as stated, and I have no time to theorize upon them; but the whole matter appears well worthy of the attention of those interested in photographic science.

"To proceed with the more immediate objects of this paper, which are, to contribute such hints as seem to me likely to prove of use to those who are at once in a position and disposed to practise lunar photography, and also to remove an impression which, I fear, Mr. Crookes' paper is in some measure likely to produce, viz. that none but first-rate instruments, worked by consummate skill or experience, can be made available. I would also first state, that a little experience will probably show that the uncertain and unsteady state of our atmosphere (that great drawback to ordinary observation with telescopes of large dimensions) is also a bar to the perfection of lunar photography.

"The thinnest gossamer cloud, or a haze of barely visible vapor in the moon's region, either of them little interfering with an observation, are both sadly against obtaining a good photograph; while the quivering of the image, caused by currents of air of different densities passing between the object and the instrument, and which often does not preclude the observer from obtaining momentary distinct glances, must seriously mar the sharpness of the photograph. In like manner the leaves of a tree, though rustled by a light breeze, can be distinctly seen for moments by the eye, when to photograph them distinctly (except instantaneously) would be impracticable.

"We want, not one or a dozen, but at least 100 different photographs of our satellite, so as to present to our view every available portion of its surface under the effects of (to it) a rising or setting sun; and it is only by seizing on the few and far-between moments of highly favorable atmosphere that we can hope to obtain such a series, sharply defined, at least in this unfavorable climate. It is therefore desirable that no one who passesses the required appliances should be unnecessarily deterred from the pursuit: of these appliances I shall shortly speak, in the order of their probable efficiency.

"A large telescope, either refracting or reflecting, equatorially mounted, and moved by adequate clockwork, is, though by no means necessary, certainly, *par excellence*, the thing to be desired; but if such be forthcoming, and the clockwork once *adjusted to the mean apparent motion of the moon in* AR, any attempts (by hand) to make the motion of the telescope more strictly conform to that of the moon (in that direction) are more likely to be injurious than otherwise.

"The mean difference for 24 hours between the the moon's average and actual motion in AR, I find, from data taken from the Nautical Almanac, to be under 2 minutes, therefore the mean difference for 4 seconds of time (that in which Mr. Crookes took his negatives) in that part of 2 minutes which 4 seconds bears to 24 hours, or say $\frac{1}{180}$ of a second of time, or $\frac{1}{12}$ of a second of arc. To express this difference *photographically*, the resulting indistinctness would be less than that due to the shifting of $\frac{1}{10000}$th of an inch, in an image of the moon of 2 inches diameter. So far, therefore, it would be as useless as unwise to interfere with the movement for following the moon in AR, if effected by good mechanism, even should the time of exposure be ten-fold that of 4 seconds; conversely, should the time of exposure not much exceed 4 seconds, the displacement of the image, owing to a change of declination of the moon (though the latter be occasionally ten times in amount that of AR), will not sensibly affect the distinctness of an image charged under all ordinary circumstances with a far greater amount of indistinctness arising from atmospheric disturbance.

"There are intervals, however, when the atmosphere is both clear and also in that state of repose which admits of obtaining results commensurate with the highest perfection of the best instruments; and if it be hereafter found of advantage (a matter which at present seems doubtful) to take secondary and enlarged images *at the first operation*, requiring perhaps some minutes' exposure, *then* I would recommend the adoption of the following method, instead of hand work, for following the moon in her varying declination.

"The portion of the apparatus connected with the telescope for containing the dark frame to be made capable of sliding by a small quantity, and acted upon by a screw connected with a small clock movement; this motion to be capable both of adjustment and of being reversed: the value of the common divisions of the screw once ascertained, would afford data for forming a table, from which, with the assistance of the Nautical Almanac, the required correction for the differing declination N. or S. of the moon could be applied

"With such an addition to a really good equatorial, I can see no difficulty in exposing a sensitive surface for minutes with all the accuracy desirable, and much lengthened exposure will no doubt be required where negatives of 6 to 8 inches diameter are attempted. On the other hand, where a short exposure, say from 4 to 20 seconds only is required, and where it is found necessary to keep both AR and Dec. motions "in hand" by the usual means of Hook's, joints, handles, or other contrivances, any assistance to be derived from clockwork seems problematic.

"An equatorial mounting is, however, by no means necessary for photographing the moon's surface; and where the time of exposure does not exceed 30 seconds, the apparatus devised by Lord Rosse seems admirably suited. It may be shortly described thus:—On a flat surface attached to the telescope, and parallel to the plane of the image, is attached a sliding plate, the slide being capable of adjustment to the direction of the moon's path at the time of operating. The slide is actuated by a screw moved by clockwork, and having a governor or regulator of peculiar construction which acts equally well in all positions (this, in the instance before us, is necessary); the clockwork being once adjusted requires no change, but the inclination of the slide must be effected by trial for the moon's path at the time of taking the photograph, the telescope itself remaining firmly clamped. This apparatus is peculiarly fitted for large telescopes not equatorially mounted, and though a little more troublesome in the management, as requiring constant rectification of the slide to the moon's path, promises to afford the means of taking photographs of the moon as perfect as those which can be obtained with the aid of the best equatorial arrangements.

"This communication having already exceeded its intended length, I defer to another, the consideration of some details, including that of obtaining large negatives at the first operation.

"The few negatives I have as yet taken are only of that size afforded by the direct image formed by the object-glass, viz $2\frac{1}{10}$ inches nearly, and the positive prints from these on the table do not exhibit the sharpness, of the negatives: that portion of the image corresponding with the moon's bright limb, which would be most affected by any want of perfect uniformity of the motions of the telescope and moon in AR, is in the negatives intensely sharp, even where the exposure lasted for 45 seconds, thus proving the efficiency of the clockwork unassisted.

"The actinic force varied much on the several nights of operating, 10 seconds giving a full negative in some, others requiring 30 to 40 seconds' exposure. The wind was east, the definition middling, and consequently leaving a prospect of obtaining better results in more favorable states of the atmosphere. The sensitizing bath was new and of fused nitrate; the collodion, "Thomas's;" and it is remarkable, that while the collodion employed gave excellent negatives with good half-tone, of day objects, the negatives of the moon, with all lengths of exposure, have excess of light and shade, thus indicating a greater actinic difference of intensity than of visual in the dark and light portions of the moon's surface, and suggesting the necessity of using a peculiar collodian of low intensity for obtaining the best lunar negatives."

From the Jour. of the Phot. Soc.

PHOSPHATE OF SILVER PRINTING PROCESS.

Maison Ramonet, Bagnères de Bigorre, March 14, 1857.

SIR,—I see that in my metagelatine process published in your last, there is one slip of the pen which I wish to correct; it is, that the proportion of honey to be added should be exactly doubled, and should be 4 drachms, and not 2, as there stated. If the plate is to be kept very long, and in warm weather, it may perhaps be found preferable to wash it in a bath of distilled water, to which has been added a grain or so of nitrate of silver to the oz., before pouring on the liquid; but as yet, the weather having always been tolerably cool since I have been working with the process, I have never found any difficulty in keeping the preserved plates for more than a week in the dry state.

I also wish to say a word on the subject of my phosphate of silver process, to which I have added the following modification:—

Salting bath.

Phosphate of soda.............	2 ozs. 4 drms.
Rochelle salt..................	5 drms.
Sugar of milk................	2 ozs.
Gelatine......................	1 drm.
Water........................	40 ozs.

I need hardly repeat the cautions contained in my former communication on this subject, viz. to beware of the presence in the water, or the chemicals employed, of the most minute portion of chlorides, iodides, bromides, or, in fact, of any salts which form precipitates with nitrate of silver insoluble in phosphoric acid. To wash the proofs I pursue the following plan:—

Six porcelain or gutta-percha dishes are ranged one beside the other and filled with clean rain-water, and through these all the proofs are passed in rotation after leaving the phosphoric acid bath. They are allowed to remain a short time in each bath, being turned over in it once or twice. On coming out of the 6th tray they will be found completely washed and ready for the coloring-bath.

When bath No. 1 is found to be much charged with silver, as it will be in a short space of time, it is to be emptied into some convenient vessel, to be treated for the recovery of its waste silver. No. 2 bath is to be emptied into No. 1, No. 3. into No. 2, and so on, till No. 6 being empty is to be filled with rain-water. In order to recover the silver from the bath No. 1 which has been emptied away, add to it a little solution of common salt, till all the silver is precipitated as chloride. A similar treatment is to be pursued in order to purify the phosphoric acid bath itself, when it gets over charged with silver, as may be seen in a former communication on this process. By this system of washing the trouble of carrying water is much economized, at the same time that No. 1 bath into which the proofs are plunged on first coming out of the phosphoric acid, and when consequently they are still highly charged with silver, can obtain no traces even of chlorides, as it must always contain a slight excess of silver, and it is difficult to procure even rain-water at times without minute quantities of chlorides in it.

This process is so successful that I now never employ any other, and find that with it I can print and finish at least twice as many proofs in the day as with the old process. It is more rapid, gives, many think, finer tones, and requires no overprinting; offers extreme facilities for collecting the waste silver of which enormous quantities were lost by the old method, and, best of all, *avoids entirely the use of hypo in any shape or form.* I may add that the pictures exhibited by me at the Crystal Palace are all done by this process, and I have the honor to enclose with with this letter a picture subject (La Grotte de Saul, Vallée de l'Ours, Mauleon en Barrousse) taken on dry collodion (metagelatina process), and printed by the phosphate of soda process above described.

I have the honor to be, Sir,
Yours obediently,
F. MAXWELL LYTE.

MR. SHADAOLT—The process alluded to in the former part of Mr. Lyte's letter, is published in the last Journal as the "Metagelatine Process." I am very sorry to see it put forth as a new process, because, practically and theoretically, it is nothing more than Dr. Hill Norris's gelatine process. It is true Mr. Lyte makes use of a modification, but it does not seem to me entitled to be considered as a new process. I regret very much that it is the practice of photographers to get up a modification of a process well known and call it a *new* process.

MR. MALONE.—With regard to what has fallen from Mr. Shadbolt, I may be allowed to say I do not consider the suggestion of deliquescent sugar, or honey, treacle, &c. equal in merit to the publication of the effect of deliquescent bodies generally; I only regard deliquescent sugar as furnishing a new modification of Messrs. Spiller and Crookes' original process.

From the London Art-Journal.

THE GLASS COURT.

Of Steigerwald, of Munich, at the Crystal Palace.

One of the most interesting additions to the sights in the Crystal Palace is a very extensive collection of articles in colored glass, vases, and vessels of every description, exhibited by Franz Steigerwald, of Munich. The collection consists of vases in the Moorish, the Egyptian, and the Grecian styles—from those of colossal dimensions, down to the smaller sizes, suiting chimney-pieces and the drawing-room table, desert-services, fancy-flowers, and numerous other articles.

Those only who are acquainted with the almost insurmountable difficulties of the manufactory of glass can fully appreciate the merit of these articles; even they will be surprised at designs of such dimensions and intricate forms, with their ornaments in all their details.

It cannot be uninteresting to our readers if we supply a brief description of the locality in which these elegant specimens of the industry and skill of man are created. The manufactory is situated in the midst of a mountainous district known by the name of the Barvarian Forest, on the Danube—3500 feet above the level of the Mediterranean, at the foot of the Arber, the highest summit of this chain of mountains, and about 6000 feet high. The raw material, an excedingly beautiful quartz, is chiefly gained in close proximity to the manufactory, from the Hüner Kobel quarries; and, as this mountain rises about 1000 feet, means are thus afforded for conveying the requisite quantity of quartz on sledges during the winter with great facility to the manufactory. The forests, which cover a vast area, consist of pines, beeches, maples, &c., affording an abundance of wood; so extensive are these forests that the number of trees which perish by natural decay is probably much larger than those that are cut down for firewood. The winter season, however, which commences in October, continuing with uninterrupted severity till the month of May, covers the whole district with such enormous masses of snow that the roads for the sledges are carried over deep chasms, rocks—nay, even over hedges and houses, thus affording the only means of conveying the requisite materials to their destination. With a certain distance from the manufactory the snow generally accumulates to a height of five or six fathoms, but is, as before explained, of the greatest importance to the establishment.

The usual number of workmen in the different branches of the manufactory seldom exceeds 350 or 400.

The produce of the manufactory is, however, so large that a considerable quantity of glass goods are regularly exported to the Bohemian mountains, where great numbers of workmen are occupied in cutting, engraving, gilding, and painting the various glass vessels. But the finest and largest pieces are kept back and finished at Schachtenbach, because those works of Art must be treated with particular care. It is a peculiarly interesting feature in the manufactory of glass, that the skilful workmen employ none but the simplest tools for producing the most complicated works of Art. Everything is done by hand; no machinery—such as is applicable in other branches of industry—is used. Thus for, instance, the whole apparatus for cutting consists of simple disks of iron, stone, or wood, which turn around their axis; those of the engravers, of copper and lead: the former are moistened with water and the latter lubricated with oil and emery, and by the mere turning and twisting, and holding the vessel under different angles to the disk, the ingenious hands of these simple workmen create the glorious ornaments which delight our eyes.

As every country and every climate possesses its peculiar advantages, thus the long winter of those mountainous districts is followed by a delightful summer, which can nowhere be paralled in freshness and brilliancy. Before the snow has melted away, the meadows are covered with a luxuriant carpet or flowers; the trees exhale refreshing fragrancy, and nature is endowed with new life and activity. The soil is furrowed by the active hand of man, the cattle being driven up to the Alpine meadows to graze there for the whole summer.

From the Journal of the Pho. Soc.

THE COLLODION PROCESS.

BY THOMAS RODGER, ST. ANDREWS*.

[Concluded from p. 190, No. VI.]

I come now to the actual preparation of a plate. Holding the plate by an extreme corner with the left hand, I pour on the collodion at the right-hand corner and let it flow to the thumb down over the plate to the farther left hand corner, and lastly off from the farther right-hand corner into the bottle, which I cork immediately. I now watch the film for a minute or longer, and if I notice any tendency to the formation of a corded appearance, the giving the plate a contrary inclination and a gentle rotatory motion is sufficient to make all right. I now slip the plate quietly and continuously into the nitrate of silver bath, and allow it to remain undisturbed for from thirty to forty seconds. I then raise it up entirely for a moment and put it down again; after which, if I see that the solution flows freely off the surface without leaving oily-looking streaks, I drain it for a little and then place it in the camera-slide. I must not omit the remark or two regarding the treatment of the slide; if the slip is wet at the corners or elsewhere, owing to its having been lately used, never omit to dry it with a piece of cloth, set aside and kept clean in a small box for the purpose. I now carry the slide with the plate to the camera, and expose it as speedily as possible. The nitrate of silver bath which I use is of the strength which has always been recommended, namely, 30 or 35 grains of crystallized nitrate of silver; 1 oz. of distilled water. And in order that the bromo-iodide of silver formed in the film may not be dissolved, there should be added to this a small quantity of freshly precipitated iodide of silver, and the mixture well shaken afterwards: the quantity required will be found to be very small, not exceeding from 6 to 8 grs. for a 30 oz. solution.

I keep up the working strength of the bath by adding occasionally a few drachms of a 40-grain solution, as its volume diminishes by use. I should have said that 1 oz. of common spirit of wine should be added to a 24-oz. bath solution: the quantity very soon increases by use. I filter the bath very seldom, and prefer (unless there be a floating scum) rather to let it subside.

I can say little about the time the plate must be exposed in the camera, further than that, with my lenses, which are by Ross and Lerebours, and have moderate diaphragms, and with the chemicals prepared according to the formulæ given, my usual time of exposure (in shade) for negatives is in summer from five to thirty seconds, according to the hour of the day; and that at the present season, in the early part of a good day, it is about the same.

The quarter from which I have almost always managed to receive my light is the north-east. The steady character of light coming from this direction renders it a matter of consequence, in taking a portrait especially. To develope the image, I have long employed two different solutions; using either according to the character of the object, and the quality of the light. I shall first give the formulæ, and then make a remark or two regarding their application:—

1.	Pyrogallic acid	40 grs.
	Water	16½ ozs.
	Spirit of wine (ordinary)	1½ oz.
	Formic acid	2 ozs.
2.	Sulphate of protoxide of iron	2 ozs.
	Water (ordinary)	16½ ozs.
	Dissolve, and add of spirit of wine	1 oz.
	Formic acid	1½ oz.
	Sulphuric acid	5 drops.

For a lanscape No. 1 is excellent, bringing up, as it does, the parts in deep shadow, which would with many other developers be utterly lost. In portraits of gentlemen, No. 1 is also specially applicable: and I always prefer it for such, as without

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* Read March 10, 1857.

A GOLD MINE IN CALIFORNIA.

Negative by C. Farrand from a Daguerreotype.

approaching to hardness, I obtain by it a very pleasing decisiveness of light and shadow. But, for ladies, I think too much care cannot be taken to avoid a rapid passage from lights to shadows in photographs. Therefore, to obtain that delicate and softened effect so suitable and necessary to the subject, I certainly prefer the latter solution. Very often, however, in fine light and warm weather, I as readily make use of No. 1.

The spirit is employed merely to ensure a ready mixture between the bath on the plate and the developer.

When I develope a picture, I pour on the developer and give the plate a little motion, so as to mix whatever nitrate of silver is on the surface with the developing solution, to secure uniform action; and, after the image seems pretty decided and intense, I raise the plate and examine for an instant by transmitted light. If there should happen to be a thinness or want of intensity in the deposit, I mix half a drachm of a weak solution of nitrate silver with what was poured off, and pour it off and on the plate several times, or until I obtain the opacity which I desire; after which I immediately wash in the ordinary way before fixing.

But before describing the latter operation, it will be necessary to make a few remarks concerning the use of the sulphate of iron developer.

First, it must be poured very quickly and expertly over the surface, without being allowed to stop for one instant on any portion; for if it does this, a mark is the sure consequence. After 3 or 4 seconds at most, the mixture must be poured off, and the plate washed. I never now expect the picture to possess negative intensity, which, indeed, it seldom acquires, owing to the rapidity of the operation. I am fully satisfied if (on holding the washed plate against the light in the operating closet) there be given a very faint, but beautifully soft and perfect image. Intensity must be imparted to it before it can be employed as a negative, and this is to be done after it has undegone fixing. I prefer a solution of cyanide of potassium containing 15 grains to the ounce of water. I sometimes pour the solution over the plate, and sometimes immerse it in a dish containing the solution; and as soon as the yellow bromo-iodide of silver disappears, I wash both sides of the plate as perfectly as possible under a tap.

The plate having been well washed from every trace of the fixing chemicals, I pour over the picture a small quantity of the sulphate of iron developing solution, and return it into a small vessel containing a little weak nitrate of silver solution, and pour the mixture very quickly back on to the plate. I now keep the plate in motion for a little time; and if, on observation, the image is found to have acquired the depth desired, it is washed and set aside to dry. If, however, the image be still too weak the operation requires to be repeated.

The advantage to be gained by this method of intensifying is, that the lower lights of the image are intensified in the same ratio as the higher,—this being the great desideratum in other methods.

The protecting varnish which I use for my negatives is the most economical, and perhaps the best that can be employed. It was the first to be recommended, viz.

Gum Dammar........................	6 drs.
Mineral Naptha......................	3 ozs.

Dissolve.

If the negative should happen to be rather faint, dilution of the varnish is advisable to an extent that will leave the surface dull or flat.

From the Journal Phot. Soc.

PRIORITY OF INVENTION OF THE HONEY PROCESS.

To the Editor of the Photographic Journal:

Sir,—I regret that Mr. Maxwell Lyte should in his last letter, have resorted to incorrect assertions and uncourteous language, instead of combating the arguments, founded on written communications, in order to show that he could not claim the priority over Mr. Shadbolt in using honey for long-preserved plates. In the letter inserted in the Journal of January last, I made no such admissions as Mr. Lyte would fain persuade himself I made. If any reader still wishes to ascertain the truth as to the priority of invention, he will find all the facts and materials in my former communications. In these it was shown that before he can claim the priority, Mr. Lyte must produce very different evidence from what he has already done; and as he failed to do that, the necessary presumption is, that he is unable to do so It was Mr. Lyte who challenged comment on the interesting point: and a case, which cannot be made good by argument, nor supported by facts, will hardly be mended by resorting to those peculiar weapons which Mrs. Malaprop mildly terms "flowers of speech."

I am, &c., J. S.

From the Jour. of the Phot. Soc.

IMPROVED LEVELLING STAND.

To the Editor of the Photographic Journal:

Dear Sir,—Will you allow me to recommend to those of your readers who may experience any inconvenience in the management of the ordinary *leveling stand*, the following simple contrivance which I hit upon a short time since, and have found very efficient?

Procure a small three-legged stool, about 7 or 8 inches high, and with a perfectly flat top; take one of the largest-sized gutta-percha funnels, and measure the diameter of its circle at about $\frac{3}{4}$ of an inch below the rim; cut an accurately circular opening of this diameter in the top of the stool, drop the funnel into this opening, and you have your leveling stand. The weight of the plate to be developed placed on the funnel keeps the latter sufficiently steady; or when very small plates are used, this object may be attained by dropping a small lead or other weight into the funnel, or by interposing between the latter and the plate to be developed a small square of thick plate glass.

Its advantages over the ordinary tripod stand are, that with the usual plate glass and spirit level, the exact level is more quickly and easily found; the operator, with his hand under the stool, lightly holding the neck of the funnel between the finger and thumb, being enabled to direct and control the inclination of the surface with great ease and nicety, while the precision with which motion can in this way be communicated to the fluid on the plate without spilling, is of great service in the development, particularly when this is long in completing; moreover, the difficult feat of pouring the fluid off a large plate into a receiver without spilling, is readily managed with this apparatus without removing the plate from the stand.

To prepare the rim of the funnel for close and even adaptation to the glass plate, nothing more is necessary than to invert the funnel on a sheet of emery paper, placed on a table, and holding it by about the middle of the cone, communicate to it a gentle rotatory motion. W. C. G.

From the Jour. of the Phot. Soc.

ON THE ARRANGEMENT OF THE SITTER IN PORTRAITURE.

BY SIR W. J. NEWTON.

No object should be taken *within* six feet from the lens, or it will appear distorted;—the general distance should be from ten to twenty feet, which, for figures, would be more harmonious; this is, however, regulated by the focal length of the lens.

If the point of sight is *near*, and the subject be a figure *standing*, the appearance would be as if standing on *tiptoe*; therefore it requires great care and judgement in selecting the *point of distance* for every subject, in order to obviate this evil;—and further, if the figure is standing upon a *dais*, from one to two feet high, the effect is much more agreeable; indeed, whether the figure be standing or sitting, it is always better that the subject should be placed in an *elevated* position with reference to the lens, to be regulated according to the *distance*.

This is the practice of all portrait-painters,—the reason being that the head appears *more raised from the shoulders* (which is more elegant); whereas if the lens is so placed as to *point downwards* on the *head* of the subject, it gives the appearance (especially if *near*) as if the head was *buried* in the *shoulders*, which is always ugly and vulgar with respect to portraiture.

For the Photographic & Fine Art Journal.

HELIOGRAPHY NO. 2.—ITS ELEVATING AND REFINING INFLUENCES.

Mr. Editor,—In a preceding communication, I dilated at considerable length upon the agency which, as it seemed to me, the Heliographic Art was destined to exert upon the advancement of society to better and higher conditions, than those existing hitherto. As *initiatory*, however, that article was naturally limited to a general discursive view of the subject in question.

With your permission I will now speak, with comparative brevity, of one *special* topic embraced by the general subject.

For example. The training of a people to the love of sublimity and beauty, and of those arts, which embody and manifest these, is one exceedingly important step towards the civilizing, intellectualizing and refining of such people. It lifts them above that sphere of *narrowly* (not to say *falsely*) named *utility*, which, when unmodified and pursued *exclusively*, becomes synonymous with materialism and sensualism, if not with absolute grossness. "Man lives not by *bread* alone." To scheme, to labor, and to exist for his *animal* nature *solely*, is not to fill up the outlines of the *man*, but to remain an associate of the *brute*.

For to cultivate the mind, so as to become susceptible of and participate in intellectual pleasures, is by his very organization prescribed as an essential part of his destiny. It is one, assuredly, of the most important parts, and of a higher, nobler, and infinitely more enduring character, than aught connected with that clay-compacted structure, which a few hurrying years shall re-resolve into clay.

Now of such intellectual pleasures a large portion is comprised within the domain of the Fine Arts. So that a normal, thorough culture of the mind is impossible without a due attention to that Art.

But how shall this be effected by that great majority of our race, who must, perforce, eat their bread by the never-ceasing "sweat of their brows!" Neither leisure nor opportunity is theirs for a methodical, profound, protracted study of the Arts.

Precisely here it is, that one of the services, rendered to mankind by Heliography, becomes apparent. For at moderate rates, well nigh every member of the community may obtain sun-pictures of himself and his family. But he may do even more. He may procure life-like representations of works of Art, and of striking scenery and edifices, both in his own and foreign lands—in a word, of the beautiful and grand alike in the works of God and of man These, suspended within his dwelling, and meeting daily and hourly the eyes of that dwelling's inmates, must naturally exert an effect towards the artistic education of all beholders. I do not say that this will be a profound technical education, and yet it will be of exceeding value. We are ever moulded and affected in both our sentiments and thoughts by the objects about us, and not less in this case than in others.

Another item of a kindred class I will venture to mention, in defiance of the possible ridicule which may be cast upon it. It is this.

At the entrances of numerous Heliographic establishments, are suspended specimens of the performances of their artists. Many of them, it is true, may be quite indifferent, and yet few, if any, are totally devoid of pictorial merit, while some exhibit a high order of artistic genius and skill.

Now multitudes of those traversing our streets, pause for a few moments to examine these pictures. Unconsciously perhaps, but none the less really, they compare these with those, and so contract preferences of one professor above another. Errors in taste and judgment they may, doubtless, often commit, nor is the process a very rapid one of thus becoming artistically educated. And yet this habit of *comparing* and *electing* is an exceedingly important agency in development, and much more is achieved thus in the way of Art-culture, than superficial persons are apt to imagine.

Not, then, to enlarge further at present, I regard the Heliographic Art as being, even in this single respect, an important instrumentality for the educating and refining of society.

M. A. Root.

From the Jour. of the Phot. Soc.

APPLICATION OF PHOTOGRAPHY TO LUNACY.

BY T. N. BRUSHFIELD, ESQ.,
Superintendent of the County Lunatic Asylum, Chester.

I have not had an opportunity of reading or knowing the contents of Dr. Diamond's paper photography as applied in the treatment, &c. of lunacy, beyond the ordinary newspaper article; but I have found, notwithstanding my imperfect attempts, that patients are very much gratified at seeing their own portraits, and more particularly when associated with a number of others on a large sheet of Bristol board, framed, and hung up as an ordinary picture in the ward. In our worst female ward I have had a positive (on glass) framed and hung up for nearly eighteen months, and it has never yet been touched by any of the patients, although nearly all know whom it represents. Last week a patient, who was formerly one of our most violent cases, begged for a portrait of herself that she might send it to her son, who was in Ireland, to show how much better she was.

In the case of *criminal* lunatics, it is frequently of great importance that a portrait should be obtained, as many of them being originally of criminal disposition and education, if they do escape from the asylum are doubly dangerous to the community at large, and they may frequently be traced by sending their photographs to the police authorities (into whose hands they are very likely to fall), from some act of depredation they are likely to commit; the photographs would thus cause them to be identified, and secure their safe return to the asylum.

With respect to those whose features cannot be made to assume a settled look, a highly sensitive collodion is necessary. I enclose a portrait of a patient whose expression of countenance varies every few seconds.

From the Jour. of the Phot. Soc.

SANG'S STEREOSCOPIC CAMERA.

The Vicarage, Tilshead, April 28, 1857.

To the Editor of the Photographic Journal:

Sir,—The adoption of the principle of the cyclograph in the construction of a converging table seems to be an improvement upon the plan of Clarke, but I venture to suggest a method by which it may be simplified and the motion rendered smoother. A lath is glued to the board AB (fig. 2, p. 145 *P. & F. A. J*), close to the edge of the upper and lower side, a *trifle thicker* than the rule CD, upon which the board GH rests. The spring S is removed, together with the two small bits of wood. Instead of these, I screw to the board two hard wood wheels or rollers, the same thickness as the rule CD, which in this case requires no bevel. These rollers press upon the rules on their lower side (in the figure), and all that is required, when the camera is used, is to keep the instrument to its bearing, the rollers turning easily as the camera is moved from one side to the other. With one of Ross's two-and-a-quarter lenses, I can take a stereoscopic portrait, in the shade, in eight seconds, including the time occupied in changing the dark box. There should be a few holes, at equal distances, made in the board AB for pegs, so that the stride, previously determined, may be made without loss of time. I am, Sir, yours respectfully,

J. H. Johnson.

From the Jour. of the Phot. Soc.

MR. HARDWICH ON COLLODION.

In my last paper on the manufacture of collodion, the employment of methylated spirits and the properties of the various iodizers were spoken of. Methylated collodion, although more economical and answering sufficiently well for landscape work, is considered inferior to the pure collodion in retaining a constant sensibility for a length of time.

Of all the iodizing materials proposed for iodizing collodion, preference is given to the iodide of cadmium, both from the fact of its being easily obtainable in a pure state, and also because it offers the greatest amount of stability. Even when months have elapsed, and collodion iodized with the alkaline iodides has become high-colored and insensitive, the properties of the collodion prepared in this way remain comparatively unchanged.

To make a good negative collodion, however, with iodide of cadmium requires study. The film is exquisitly sensitive, and takes impression readily from objects in the deepest shadow. A faint outline of every part of the image is discernable even after a momentary exposure. The difficulty is to give sufficient vigor and brilliancy to the negative. In the case of the alkaline iodides, the decomposition which is produced in the collodion has the effect desired, but with the iodide of cadmium little or no change takes place, and hence it is sometimes necessary to add an organic substance. This subject will be treated of more at length in the next paper; at present we remark only, that the amount of intensity which is required in any collodion will vary much with the state of the nitrate bath, and also the character of the light at the time of taking the picture. On a clear day the image developes quickly, and the action of the pyrogallic acid can be prolonged to any extent; but when the atmosphere is full of smoke or vapor, the particles of silver are deposited more slowly and the impression is blue and feeble. An image which developes rapidly and of a red tint will always blacken if the development be prolonged; but a picture of a dull leaden tone, characteristic of a feeble light, intensifies slowly, even when free nitrate of silver is added. These facts explain the reason why the same collodion will sometimes give a strong and sometimes a weak picture. Iodized collodion which has undergone organic decomposition, is less liable to vary in this way than pure collodion; but in such a case, unless the light reaches a certain point of intensity, no impression will be made upon the sensitive plate. Hence, when old and brown collodion is used, in bad weather the deepest shadows of the picture cannot be brought out, although the lights are sufficiently developed. Between these two extremes therefore a middle point must be chosen, and the intensity increased as far as can conveniently be done without sacrificing the sensitiveness to feeble rays.

Remarks on the Physical Structure of Collodion Films.—Iodides which have an alkaline reaction, such as the iodide of potassium or the iodide of ammonium, render collodion more fluid and structureless, whilst acid iodides, like the iodide of cadmium, have an opposite tendency. Collodion containing the iodide of cadmium is with difficulty prevented from setting in crapy lines, and the developer does not flow so readily as upon a film prepared with iodide of ammonium; much however will depend upon the temperature at which the pyroxyline was made, a high temperature giving the greatest degree of fluidity.

The use of rectified alcohol of 820° sp. gr. makes the film more smooth and even, when the spirit is added in large proportion. But with collodion containing only a small quantity of alcohol, water may be present to a considerable extent without interfering with the fluidity.

Water in collodion is favorable also to a *short* texture of the film, so that the fluid becomes more tenacious and contractile in proportion as the alcohol is strengthened by rectification. Hence collodion made from spirits nearly anhydrous will sometimes draw itself away from the edges of the glass. The film of short texture is always however more or less rotten: it sticks tightly to the glass and cannot be pushed away in a connected skin, but a small stream of water directed strongly against any particular part will readily make a hole.

Dr. Norris has latelely drawn attention to the importance of using a short powdery collodion for the dry processes, but it is doubtful whether this condition of film is the one best adapted for the moist collodion process. Experiments made to determine this point appeared to show that a gelatinous and somewhat coherent collodion surface is more readily acted on by a weak light than a powdery film; and hence the gradation of tone will be more perfect in the former case. If this observation be correct, a short texture of the collodion is desirable only in so far as is necessary to keep the film upon the glass, and to prevent the solution of hyposulphite used in fixing from working underneath.

Reaction of Iodized Collodion to Test-paper.—Useful information may often be gained by placing strips of blue and red test-papers in collodion, and allowing them to remain for several hours. If the salt of cadmium is used to iodize, the reaction should be acid. Commercial ether and alcohol are, however, liable to contain free alkalie, either ammonia, or carbonate of potash(?). In photographing in a dull light, the presence of a trace of ammonia is advantageous rather than otherwise; but in a strong light, the image may become too red under such circumstances,—an alkaline state of film being favorable to reddening of the high lights. Hence in landscape photography a colorless collodion, faintly alkaline to test-paper, would probably give feeble skies. Free iodine added to such a collodion until it becomes yellow, adds greatly to the intensity, although the same effect is not produced under opposite circumstances:—in a glass-house and in dull weather, for instance, an excess of iodine only serves to make the image more blue and to prevent the half-tones from being properly developed. Hence it is simply by correcting *over*-action of a powerful light that free iodine and acids are sometimes useful in adding to the intensity. These observations do not apply to collodion containinig organic matter: in that case the presence of free iodine may either increase or diminish the intensity, according to the nature of the organic substance.

From The Jour. of the Pho. Soc.

STRENGTHENING NEGATIVES.

13 Briggate, Leeds, May 13, 1857.

To the Editor of the Photographic Journal.

Sir,—Allow me to call the attention of photographers to a process originally published by MM. Barreswill and Davanne for strengthening collodion negatives, and which appeared in the Journal of August 1854. It does not seem to have received the attention that I think its merits demand, probably from MM. Barreswill and Davanne recommending the use of gallic acid in development. If pyrogallic acid be substituted, the results are readily obtained and are excellent; and not only is it useful in strengthening weak negatives, but it will with equal success convert a positive picture into as dense a negative as can be desired, the gradations of tone in the original picture being preserved in the resulting negative.

The following is the process I have found successful :—After fixing and washing the picture, before it is dry, if possible,* pour over a quantity of iodine solution prepared with

Compound tincture of iodine.......	2 drachms,
Distilled water..................	8 ounces;

let it remain on the plate one or two minutes; wash it all streakiness has disappeared, and expose to daylight for about a minute. On returning to the dark room pour over the following solution:—

Pyrogallic acid....................	2 grains,
Glacial acetic acid................	15 drops,
Spirit of wine.....................	10 drops,
Distilled water....................	1 ounce;

pour back into the developing glass, and add 10 or 12 drops of nitrate of silver solution (30 grs. to 1 oz), and again pour over the picture; keep the solution moving about for a short time and return it to the glass; repeat this with the same solution till the desired intensity is obtained, adding more silver solution if the picture is rather slow in blackening.

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* If the picture has been allowed to dry, wet the plate thoroughly with water before applying the solution.

Carefully wash with water, treat with weak cyanide of potassium solution, and give it a final wash.

I would suggest a trial of the process to those who experience any difficulty in obtaining dense negatives with the dry processes on glass, using pyrogallic or gallic acid to develope according to the method they adopt. Paper negatives might also possibly be intensified by a suitable modification of solutions.

I am, &c.,

R. J. Fowler.

From the Liverpool Photographic Journal.

EXHIBITION OF ART TREASURES AT MANCHESTER.

Having paid several very pleasant visits to this Exhibition, it is with no wish to undervalue the extent and beauties of the collection, that we are induced to say we have hitherto returned with a feeling of regret that we have been unable to fix our attention upon specific subjects; we have wandered through saloon after saloon, and thence round the galeries above, and have met with so many and varied distracting objects, that a quiet study of any master-piece has been quite out of the question, and we still long for the time when we can really make a beginning and follow out, as closely as may be, the design of the spirited projectors. It will hardly come within the province of this *Journal* to give any detailed account of the inestimable treasures of all kinds which liberal hands have so plenteously supplied for the edification of our Manchester friends, and the numbers to whom their hospitality will doubtless be extended; a mere reference to the clever articles on the subject, which all branches of the fourth estate are teeming with, shows how perseverance and assiduity have succeeded in bringing together a gallery of art, in all its departments, whether from the easel, the burin, or the chisel—whether they be the works of Venice, Byzantium, or Limoges—whether they be the fragile wares of the ingenious Chinese, or the more homely products of English Ceramic art—whether they be the warriors' armor, or the peaceful works of the goldsmith—a gallery of these, and a host of other things, such as have never been seen together before. It may, perhaps, seem strange that with an almost unqualified approval we should have to couple anything like positive regret, but we think we are not alone in regretting that the great principle suggested by H. R. H. Prince Albert, of a chronological arrangement, has apparently been ignored with respect to the department with which we are chiefly concerned; and we fear Mr. Delamotte has had to work with tied hands, and been unable to carry out what seems to have been the leading idea of the rest of the exhibition. Where are the early specimens of M. Niepce (from Dr. Brown, of the British Museum,) and those of M. Daguerre? Where are specimens of the early researches of Sir John Herschel, Mr. Talbot, Mr. Hunt, and our lamented friend, Mr. F. Scott Archer? the only answer is that of echo, merely reiterating the bootless enquiry. It may be said that photography is too young to have any old masters; granted: but remembering the length of art and life's brevity, we look forward into the dim vistas of a far extending futurity, and the thoughts which arise should certainly awaken a deep interest in all that has gone by in the past though few years of photographic history. Our extended requirements may savor of "the unsuspected source of enthusiasm," which a recent writer in the *Quarterly* alluded to, but when we find the same writer paying a tribute of praise, and saying that "photography is the purveyor of a knowlodge of cheap, prompt, and correct facts," we think we are not at all unreasonable in claiming a higher place in the category of art than has hitherto been allotted to us. It is a great drawback to the distinctness of this branch of the collection that it should be divided into two moieties, it could surely have been contrived that it might all have been together on one side of the organ; as things are now, few persons will see the whole of it, and a just comparison is next to impossible. A similar distribution is made of the engravings. But the present arrangements are defective in another and important point, viz., that the committee have allotted to some six hundred specimens of photographic art, a bare page and a-half of a catalogue of three hundred and twenty-four pages. We trust that no time will be lost in supplying this want, for until then we are at a loss how to commence such a critical survey of the collection as may enable our readers to compare our thoughts with their own on the subject.

From the Jour. of the Phot. Soc.

THE SIMPLICITY OF THE COLLODIO-ALBUMEN PROCESS.

BY HENRY P. ROBINSON.

Further remarks on the collodio-albumen process might seem superfluous after the many elaborate descriptions that have appeared in the Journal; but the apparent difficulty of the operation and the complication of the formulæ have prevented many taking up this beautiful and perfect process. My purpose in writing is to prove that this is the simplest and easiest method of obtaining a photographic landscape yet produced. All descriptions that I have yet seen published have given at least two silver baths, a variety of washing dishes, solutions A, B, C, &c.,—no doubt very interesting to chemists, but very puzzling to amateurs. Since I have taken up collodio-albumen, I might say I have never had a failure that could be referred to the process. I can scarcely say so much of wet collodion with a tent, with which I have met with accidents of all kinds, even to having my apparatus washed down a mountain with a sudden storm, without obtaining such perfect pictures.

I presume most of my readers are acquainted with the manipulations required for working simple collodion, so I need not waste space by describing the elements of photography, but will proceed at once to the object of this paper.

Clean the glass plates by soaking them in a dish of dilute nitric acid (half acid, half water); wash well with plain water, and wipe dry; before using, polish well with chamois leather.

Coat a plate with any kind of collodion (one giving a slightly creamy film when excited is the best), in the usual way, and dip it into a bath of

Nitrate of silver	35 grains.
Glacial acetic acid	1 minim.
Distilled water	1 ounce.

Saturate with iodide of potassium.

I find very little difference between old and newly iodized collodion; it will be found an improvement to add two drops of glycerine to each ounce. When the greasy appearance has left the plate, it should be taken from the bath and placed in a dish of distilled water, and left there while another plate is being collodionized. The first plate may now be taken from the distilled-water bath, and washed for two or three minutes under a tap; it is very important that this washing should be done completely: more failures arise from insufficient washing than any other cause. After the washing is complete and the water flows evenly from the plate, it must be allowed to drip a minute, and the following form of iodized albumen poured over the collodion, allowed to remain a few seconds, and poured back into the bottle.

Albumen	1 ounce.
Distilled water	2 drachms.
Iodide of ammonia	5 grains.
Bromide of ammonia	1 grain.

Dissolve the iodide and bromide in the water, and add them with the ammonia to the albumen, and beat the whole into a froth by any of the usual methods. When the albumen resumes its liquid state, strain through calico for use.

The plate may now be put away to dry, in which state it is perfectly insensitive to sunlight, and will keep for any length of time. When wanted for use, the plates merely require another

MR. GEORGE DABBS, ESQ.

Negative by Hugh O'Neal.

dip in the same silver-bath (used for exciting the collodion) for one minute, after which they must be perfectly washed through the distilled-water dish and under the tap as before, and they are ready for use in the camera.

I believe the sensitive plates will keep a long time; I have never had occasion to keep them more than three weeks, and I have found them after that time as perfect as when newly prepared.

The exposure on a bright day is 5 minutes with a Ross's No. 3 landscape lens, $\frac{5}{8}$-inch diaphragm, and 2 minutes with a stereoscopic lens.

To devèlope, make a solution of

Gallic acid......................	1 drachm.
Pyrogallic acid....................	15 grains.
Alcohol..........................	1 drachm.
Glacial acetic acid................	1 drachm.
Water..........................	20 ounces.

Place the exposed plate in a dish of this solution; in ten minutes add one drop of a 40-grain solution of nitrate of silver to each ounce of the developing solution, and the image will quickly begin to appear, and the development will be complete in about one or two hours, according to the light and time of exposure. If sufficient intensity is not obtained, or the development appears to stand still, add a few more drops of silver solution. The developing dish must be perfectly clean, or the solution will decompose and become muddy.

I have written the above as simply as possible, but if it is found not sufficiently clear, I shall be happy to answer any queries by letter.

From the Jour. of the Phot. Soc.

NORWICH PHOTOGRAPHIC SOCIETY.

This Society held its usual Monthly Meeting on Friday the 1st instant, The President (T. D. Eaton, Esq.) in the Chair. E. Cooper, Esq. was duly elected a Member.

The President announced to the Meeting, that Mr. Harrod being unable, consistently with the duties of his profession, to act any longer as Secretary to the Society, had with great reluctance felt himself compelled to tender his resignation, The appointment of a successor was deferred until the Annual General Meeting of the Society, which will be held in the first week in June.

Mr. Sutton exhibited several samples of paper prepared with sulphuric acid in the manner described in the last Photographic Journal. The strongest and best example was a piece of chemically pure filtering paper, which had been exposed to the action of the acid for three minutes. Mr. Sutton stated, that the harder and more sized the paper, the slighter would be the effect upon it by the acid, the size appearing to retard the action.

Mr. Bridgman handed round a miroscopic collodion copy of a print, about $\frac{1}{8}$ inch in diameter, in which every line appeared perfectly sharp when viewed through a powerful lens. Mr. Bayfield also exhibited a copy of another engraving of a similar size.

A dark tent for working collodion in the open air was exhibited by Mr. Keith, which promised well.

A very elegant and portable binocular camera was placed on the table by Mr. Rogers, which was much admired, and was a very light compact camera exhibited by Mr. Ralfs.

A series of beautiful views of North Wales by Mr. Harmer of Yarmouth, were brought by Mr. Lound, and several pictures by the urea process by Mr. Stewart, who also exhibited a variety of photographs of flowers of great merit.

The discussion produced by the exhibition of these objects of interest occupied so much time, that the consideration of some other matters intended to be brought before the Meeting was postponed.

OUR ILLUSTRATIONS.

I.—GEORGE DABBS, ESQ.

Negatives by Mr. Hugh O'Neal, of Washington.

In a manner altogether unexpected, an opportunity affords me to make a few desultory remarks upon the life and character of my old friend, George Dabbs. A name as familiar to the photographic world as either Root's, Gurney's, or Whipple's. Mr. Dabbs is one of those "whole soul fellows" whom dame nature has furnished with an extra share of good nature. His Photograph to be found in the front part of the Journal, being a fine likeness by an excellent artist, Mr. Hugh O'Neal of Washington, should bear me out in the assertion of "good nature;" but there are some things portraits cannot tell—even though they are *speaking likenesses.* For who would suppose that there was mischief lurking in that mild blue eye, or that those compressed lips ever cracked a joke; none but those who have enjoyed his society, and have had their risible faculties excited in listening to his humorous tales. When the writer resided South, nothing gave him more pleasure than to get a glipse of George Dabbs, to grasp his hand, and hear his friendly voice. He always had something good to relate of his friends at the North. If he found you with depressed spirits, he ever had a cheering word; or if buoyed up with prosperity, his very manner indicated that he felt a pleasure at your success. One of the greatest faculties Mr. Dabbs possesses, is to make you buy his wares whether you want them or not; the fraternity at large can testify to the truth of this assertion. No one ever had the interest of his employer more at heart than he. He was connected for nearly eleven years, with Mr. L. Chapman of New York, and was to this gentleman a faithful and useful auxiliary, leaving nothing *unturned* that could be *turned* to his advantage. In short, Mr. Dabbs is a correct active business man, and any of his old friends who wish to extend to him a portion of their patronage, that the brow now so smooth may not become wrinkled with disappointment, can find him almost any time standing behind the counter in a snug little room in the second story of a new building in Ranstead Place, Fourth above Chestnut street, Philadelphia, the subject of this sketch. May he meet with the success he so richly deserves, is the earnest desire of the writer. M. P. Simons.

II.—VIEW OF A GOLD MINE IN CALIFORNIA.

Negatives by Mr. C. Farrand from a Daguerreotype. The formulas for printing and toning these pictures, were the same as for the May and June illustrations. By comparing the six pictures an idea may be formed of the availability of the process.

From the Jour. af the Phot. Soc.

METHOD OF OBTAINING VARIOUS STEREOSCOPIC EFFECTS.

The Vicarage, Tilshead, April 22, 1857.

To the Editor of the Photographic Journal:

Sir,—In the leading article of your last Journal it is stated, that if a view be taken with "convergent cameras, the phantom image will be projected in front of the frame" or mount. This would, of course, be exceedingly disagreeable and unnatural. It appears to me that in looking at an object the eyes always converge to different points of it in succession, and therefore that the cameras should theoretically do so too in taking stereoscopic pictures, that is, be directed to the principal nearest object; this is readily accomplished by Mr. Latimer Clark's plan. I have constructed a stand which enables me to move the camera about 14 inches, which I find quite sufficient for ordinary landscapes, and I have never observed any distortion.

The plan I adopt is this. I have several perpendicular lines drawn upon the ground glass. If I wish to copy a piece of sculpture or a plaster figure, I prefer that the image should *stand out* from the mount. In this case I focus the object for the right-picture a little to the *left* of the entire line, and for the left-hand picture as much to the *right* of the same line. The effect is very striking, and, I think, pleasing. But if I am taking a view or a number of figures, the principal object is focussed to the right of some line for the right-hand picture, and the contrary for the left. The stereoscopic picture is then seen *beyond* the frame, as through a window. Should you consider the above remarks at all likely to interest your readers, I will thank you to insert them.

I am, your obedient Servant,
J. H. Johnson.

I need hardly say, that in taking portraits, the distance between the two positions of the camera is much less than for views.

For the Photographic & Fine Art Journal.

FREDERICK SCOTT ARCHER.

The tidings have reached us, that this distinguished Heliographer "has passed over to the majority."

"He has lain down,
With patriarchs of the infant world—with kings—
The wise, the beautiful of earth—the young—
All in one mighty sepulchre."

What were the acts and fortunes of the major part of the life of the deceased, we are not apprised. But in his few closing years, as in his departure, he may be pronounced favored above the average of men. For, something over seven years ago, he came forward, as the first practical operant in the Collodion process; having demonstrated the practicability of so preparing and using a Collodion film, as to catch impressions all but instantaneously,—a fact, which made this the best of all processes either for taking portraits within doors, or views and moving objects out of doors.

Justly may he be called fortunate, in that he has blended his name immortally with a branch of the Heliographic Art, which, in many various modes, is destined to work with incalculable power in civilizing, refining and elevating human society, as well as in promoting its moral welfare, and dignity, and happiness.

Some of these modes I will here enumerate, though I have no room to enlarge upon them.

1st. Heliography is calculated to spread a knowledge and a love of artistic culture, and of the beautiful to which it relates. Through the *cheapness* of its processes, sketches of the grand and the lovely both in Nature and in Art, and whether in foreign countries or our own, will be so multiplied and diffused so far and wide, as to come within reach of all. The various beneficial effects of the familiarity thus brought about, with beautiful and impressive objects and scenes, are too well known to need detail.

2. From the same fact of *cheapness*, it will be possible for all, ev en the poor, to obtain and keep within their homes portraits of their relatives and friends. All, therefore, may possess *memorials* of those near and dear to them, which will serve to bear them in remembrance, even when removed by distance or death, almost as effectually, as would their actual living presance. That the social sentiments, in their several degrees, will thus be greatly refreshed and invigorated, and that the moral tone of the community will, by this means, be elevated, is obvious on the mere statement.

3. For the same reason, which has already been twice stated, *life-like portraits* of the wise, the good, the great, of all ages and countries may be preserved within view in every household; thus perpetually reminding the inmates of the noble deeds and lofty virtues of their immortal originals. That purifying and elevating influences must flow from this source is manifest at a glance.

4. The practice, which already prevails in some parts of Europe, and must ere long become general, of having faithful Heliographs taken of criminals, confined in public prisons, must tend indirectly to repress crime and thus aid in the conservation of social order. Such persons, on going forth from their confinement, will be instantly and generally known, and therefore marked by thousands of watchful eyes. To renew and carry forward their career of delinquency will, of consequence, be so beset with difficulties, as to be well nigh impossible. When, therefore, the "way of the transgressor" becomes so *very* "hard," we may cherish some hopes that the way of rectitude, with its numerous inducements, will become a matter of *general choice.*

5th. It has become a practice in some Lunatic Asylums abroad, to have Heliographs taken of the patients at different stages in the progress of their malady. It seems likely, that this practice will become universal in Hospitals of every description. A moment's reflection will show, that the medical profession will from this derive a vast benefit. These pictures will subserve the same purpose as the Mannikins, *papier mache* models, morbid preparations, &c. now in vogue.

Such, just hinted at, are some of the benefits which the world is now reaping, and is, hereafter, to reap in immeasurably larger measure from Heliography. Most emphatically, then, may Mr. Archer be pronounced fortunate in having his name attached as introducer, to the *most valuable* among the branches of this Art.

He may also be styled fortunate, in that he had, as *collaborateurs* with him in the promotion of his favorite pursuit, so large a band of scientific and skillful men, many of them distinguished for their opulence and social standing. Among these may be named Talbot, Herschell, Hardwich and Hunt—Malone, Brewster, Fenton, Sparling and Hennah,—Taupenot, Spiller and Crookes, Lyte, Le Gray, Diamond, and a kindred host beside, scattered over all Europe, who have wrought zealously for the development and perfecting of this inestimable Art. To these also should ample honors be awarded. We can, very readily fancy, that to a liberal-minded, large-souled man like Archer, it must have given genuine pleasure to witness so much of high ability, and science and accomplishment, devoted to the advancement of that special branch of the great Art of sun-painting, which himself has set in operation.

The Heliographic profession at large would honor themselves by erecting a monument to their departed brother. After all, however, the Art he so faithfully and successfully cultivated, will evermore be his noblest memento. For, wherever the knowledge and practice of it shall spread—so long as men shall look on and admire its productions—and so long as these productions shall continue increasing in Artistic beauty and merit, —*then* and *there* the name of the Inventor of the Collodion Process, Frederick Scott Archer shall be known and honored.

M. A. Root.

From the Jour. of the Pho. Soc.

MR. SANGS' DRY COLLODION PROCESS.

Cross Cheaping, Coventry, May 11, 1857.

To the Editor of the Photographic Journal:

Sir,—Your last Number of the Journal contains the report of a paper read April 2, 1857, being the "description of a preservative process," by Mr. John Sang, who seems to suppose that he is the first who has been fortunate enough to stumble on so simple a process. I now beg to state that I have used the same material, viz. light-colored molasses, called golden syrup, during the past six months; and I may truthfully say that myself and a friend have operated upon no less than 500 stereoscopic plates during that period, and we have now many negatives produced by natural and artificial light, some of which are plates which were kept for nine or ten weeks before and after exposure. We have met with the same imperfections which Mr. Sang has done, but the chief difficulty has been, contending with the rottenness of the film during the process of washing off the preserver previous to development, the remedy for which has been to plunge the plate into an aceto-nitrate bath, allowing it to remain for at least 5 minutes,—half an hour will not hurt it,—after which the development proceeds rapidly and the result is satisfactory.

We have tried every method of keeping the preservative fluid, but have not succeeded, and as yet have found no advantage in any decolorization. By careful manipulation, great sensitiveness may be obtained and negatives taken in less than double the time usually occupied by the wet process. Should these few remarks be found worthy of a place in your valuable Journal, I shall feel, Sir, your obliged,

John Astley.

A MANUAL OF PHOTOGRAPHIC CHEMISTRY,

Including the Practice of the Collodion Process.

BY T. FREDERICK HARDWICH,

Lecturer on Photography in King's College, London; late Demonstrator of Chemistry in King's College. Fourth Edition. Churchill. London. 1857.

Mr. Harfwich shows more and more in each successive edition of this work that no mere mercenary motive has prompted its production. Each has followed the former with a rapidity quite unprecedented in a work professing to deal exclusively with a scientific subject, and in each we find the care and patience of the author displayed, not only in accumulating a vast number of original and important facts, but in the equally necessary and far more difficult task of weeding them from erroneous or imperfect views, and curtailing and condensing matter which experience has shown occupied more space than its importance deserved.

Thus, when we too often find that in purchasing a new edition of any work, it is doing little more than paying for a reprint of what we already possess (the slight alterations being scarcely worth the trouble of seeking for them), an author who throws his heart into the work, altering, condensing, and improving almost every page of each succeeding edition; adding new matter, and bringing more matured experience to bear upon old facts, until we are almost inclined to call each edition a new volume; who shows that in the last, equally with the first, his work has been a true labor of love,—deserves doubly the confidence and respect of all neophytes, and the impartial, earnest attention of those few master-minds who alone are qualified by experience to question the accuracy of his deductions.

The author prefaces his fourth edition by observing that he has endeavored to keep pace with the onward progress of the photographic art, and has introduced improvements in the general style and arrangement of the work.

On looking through its pages, we find that although the chapters on photographic printing are apparently the same as in the previous edition, there are, in addition to important minor alterations, improvements in the mode of albuminizing paper and in the formulæ for printing by direct exposure and by developement, which show that the whole subject has been reconsidered. The subject of *Collodion* is, however, that in which the author's originality is most shown, and in the sections referring to "sensitiveness" and "intensity of image," we meet with much new and additional matter. The classification is extended; injurious conditions of nitrate of silver are pointed out, and the mode of obtaining a film in the most impressionable condition is described. Under the same head (the production of negatives), a new photographic agent of the greatest value and importance is proposed, viz. glycyrrhizine, which is a substance, half sugar, half resin, familiarly known to chemists. The writer speaks of it as follows:—

"A pure and newly prepared collodion, although highly sensitive to light, does not always give, with one application of the developer, a sufficiently vigorous image to serve as a negative matrix; and this particularly in the most brightly illuminated parts, such as the sky in a landscape photograph, or the white borders of an engraving. Glycyrrhizine, which is a resinous body extracted from the root of liquorice, may be used to increase intensity, but the mode of iodizing the collodion is of importance, the effect being greater with the iodide of cadmium than with the iodides of the alkalies.

"Substances which produce intensity of the collodion image, when added in too large quantity, have often a tendency to lower the half-tone and prevent the darker parts of the picture from being sufficiently brought out. The print from the negative is then pale and white, or 'chalky' as it is termed, in the high lights. Collodion in this condition is often preferred by the beginner, from the facility with which the negatives are obtained, but it does not give the finest results. An excess of glycyrrhizine in collodion has also the effect of interfering with the precipitation of the iodide of silver, producing a blue and smoky film which is nearly useless for negatives.

"A judicious employment of free iodine in collodion which has been previously intensified with glycyrrhizine, has a remarkable effect in improving the gradation of tone. The excessive opacity of the high lights is diminished, and hence the operator is enabled by a longer exposure of the sensitive plate to bring out the shadows and minor details of the image with great distinctness.

"These advantages will be appreciated by the operator who has failed from working with a too feeble collodion: but it must be borne in mind, that all substances acting as intensifiers have a bad effect when the state of the film is not such as to call for their employment."

The proportions given in the formulæ for the use of this body, glycyrrhizine, appear to indicate that it is a substance of great energy, inasmuch as *four drops* only of the alcoholic solution, corresponding to $\frac{1}{50}$th of a grain of the solid, are to be added to each ounce of collodion: the sensitiveness of the film is impaired to a certain extent by the liquorice sugar, and a few additional seconds must be allowed in the camera. The inquiry may probably be made as to whether the material is likely to injure the nitrate bath. A sentence extracted from a section referring to the fogging of collodion films, appears to satisfactorily answer this question:—

"Care should be taken in introducing organic substances into collodion, many of which dissolve out into the bath and spoil it for giving clear pictures. Glycyrrhine, however, which is recommended to produce intensity of negatives, has no effect of that kind, and may be employed with safety."

We have dwelt upon this somewhat at length, because a readdy means of giving intensity to collodion is a point of great importance. The glycyrrhizine will no doubt receive a fair and impartial trial by those who are interested in producing the class of photographs for which its use is recommended, and we await with interest their verdict.

The increasing importance of the subject of "dry collodion," and the new light which the labors of Dr. Norris and Mr. Barnes have thrown upon the subject, meets with its due share of attention. The merit of having first published a clear explanation of the theory of the subject is given to the former, and the writer observes that pictures of the best kind can be made upon dry collodion, if Dr. Norris's remarks upon the physical state of the film are borne in mind. The collodio-albumen process, however, a description of which follows that on dry collodion, is spoken of as possessing advantages, from the result being more independent of the struture of the collodion.

Of Mr. Llewellyn's process we read as follows:—"The oxymel preservative process is now correctly understood and may be considered certain; those who practise it should examine closely the structure of the collodion film, since the syrup is employed in so dilute a form that the plates become nearly dry, and the same conditions are obtained as in the case of desiccated collodion."

We must not, however, conclude without, in justice to the author, pointing out a few errors which demand attention and correction in the next edition. The photographic part is admirable, and we know of no authority on such matters in which we would place more unhesitating confidence than Mr. Hardwich; but in the optical part we find some instances of imperfect or incorrect statement: thus, when discussing the use and proper position of the "stop" in front of the lens (p. 58), although he states that "the exact position it should occupy with reference to the lens is a point of great importance," we are afraid that a statement a little lower on the same page, where he says that the use of the diaphragm in lessening the spherical aberration, consists in its *cutting off* the *outside* of the lens, and thus *intercepting* a portion of the *oblique* rays (which, being true only so far as objects in the centre of the field are concerned, is not the real explanation of the use of small diaphragms as applied to large lenses), proves that the reasoning necessary to find the exact position of the stop is but imperfectly understood by the author.

There is another, we are sorry to say, grave error in the optical part: at page 70, " the lenticular stereoscope of Sir David Brewster" is mentioned; and then, to illustrate it, a diagram is given of one of *Professor Wheatstone's original* prismatic refracting instruments. Now the only thing that Sir David can in the least claim in this popular toy, is the use of the semi-lenses reversed (as the next diagram correctly shows), and we are sure that in introducing prisms in the former diagram, the author was quite guiltless of any intentional misappropriation of the learned Professor's discovery. The public, have, however, been so drilled into the idea that to Sir David belongs the sole merit of the principle of the small refracting stereoscope, that we have made these remarks rather for the purpose of showing how small are the improvements which Sir David has made, than to cavil at the slight error in the diagram,—prisms instead of semi-lenses,—on which rests the whole difference.

Mr. Hardwich is so well known as a thorough practical chemist, that we feel sorry that the outlines of general chemistry, which form the third and last part, have not received more careful attention; we admit it is a most difficult task to attempt giving even a general idea of this most boundless science by written instruction only; but we think that some of the author's definitions and illustrations are not so fortunate as they might be: for instance, in speaking of a "salt," a definition of only one class (*oxy-salt*) is given, and then a *haloid-salt* is brought forward as an illustration.

Again, we read that cyanide of potassium is a true salt, *although* highly poisonous, which would lead the general reader to infer that, as a rule, salts were innocuous. A little farther and we find it stated that in the compounds of elements with oxygen, the prefix *per* is applied to the one containing the most oxygen of all, and sesquioxide of iron is given as an example of peroxide: this is correct; but according to the above rule, ferric acid would rather be entitled to that prefix, as also would nitric acid and many other well-known examples.

We might easily multiply minor inaccuracies of this kind, but it would be unjust to the author, when a few strokes of the pen would so easily rectify them in the next edition (may it soon be called for!); and even were they ten times as numerous, they would no more detract from the value of the book as a guide to photography, than the spots on the surface of the sun diminish the number of good photographs which that luminary, in conjunctoin with Mr. Hardwich's excellent Manual, enables us to take.

From the Jour. of the Phot. Soc.

MOUNTING PHOTOGRAPHS.

To the Editor of the Photographic Journal.

Sir,—I send you the following method of mounting photographs, which I have successfully adopted, whereby the decomposition of the gum or paste is not liable to affect the photograph. I first varnish the picture over on the back with a solution of gutta percha in benzole, similar to that used in transferring photographs from glass; when dry (which takes but a few minutes) I smear the back over with a paste made of gum-dragon and water, and then apply it to the mount. The paste of gum-dragon may be kept good for years by mixing with it a small quantity of spirit of wine.

Yours obediently,
R. R. Dunelm.

From the Jour. of the Phot. Soc.

FURTHER REMARKS

On the Application of Mr. W. E. Gaine's Parchment-paper to Photography.

From the interest which my few remarks on the above subject excited at the last Meeting of the Society, it seems to me the better course to give the substance of them, together with fuller and more accurate information derived from Mr. Barlow's lecture, in the present form. Quoting from this latter authority (which I am enabled to do through the author's kindness in placing a copy of his lecture at my service), he states:—

"It being known that sulphuric acid, under certain conditions, modified vegetable fibre, Mr. Gaine instituted a course of experiments to ascertain the exact strength of acid which would produce that effect upon paper which he sought, as well as the time during which the paper should be subjected to its action. He succeeded in discovering that when paper is exposed to a mixture of two parts of concentrated sulphuric acid (sp. gr. 1·854, or thereabouts) with one part of water, for no longer time than is taken up for drawing it through the acid, it is immediately converted into a strong, tough, skin-like material. All traces of the sulphuric acid must be instantly removed by careful washing in water. If the strength of the acid much exceeds or falls short of these limits, the paper is either charred or else converted into dextrine. The same conversion into dextrine also ensues if the paper be allowed to remain for many minutes in the sulphuric acid after the change in its texture has been effected.

"In a little more, then, than a second of time, a piece of porous and feeble unsized paper is thus converted into the *parchment-paper;* a substance so strong, that a ring seven-eighths of an inch in width, and weighing no more than 23 grains, sustained 92 lbs.; a strip of parchment of the same dimensions supporting about 56 lbs. Though, like animal parchment, it absorbs water, water does not percolate through it. Though paper contracts in dimensions by this process of conversion into *parchment-paper*, it receives no appreciable increase of weight, thus demonstrating that no sulphuric acid is either mechanically retained by it or chemically combined with it. It has also been ascertained by analysis, that no trace of sulphur exists in the *parchment-paper*. The fact of this paper retaining its chemical identity, constitutes an important distinction between it and the gun-papers of Pelouze and others. Unlike those substances, it is neither an electric, nor more combustible than unconverted paper of equal size and weight, nor soluble in ether or potash. Unlike common paper, it is not disintegrated by water; unlike common parchment, it is not decomposed by heat and moisture. In this remarkable operation, the action of the sulphuric acid may be classed among the phenomena ascribed to catalysis (or contact action). It is, however, conceivable that this acid does at first combine with the woody fibre, with or without the elimination of oxygen and hydrogen, as water; and that this compound is subsequently decomposed by the action of water, in mass, during the washing process, the sulphuric acid being again replaced by an equivalent of water; for, as has been before stated, the weight of the paper remains the same before and after its conversion. Mr. Warren De la Rue and Dr. Miller are engaged in researches on this subject, which will be hereafter published.

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"The strength of this new substance, before alluded to, and its indestructability by water, indicate many uses to which it may be applied. It will probably replace to some extent vellum in bookbinding; it will furnish material for legal documents, such as policies of insurance, scrip certificates, &c.; it will take the place of ordinary paper in school-books, and other books exposed to constant wear. Paper after having been printed either from the surface or in intaglio, is still capable of conversion by Mr. Gaine's method, no part of the printed matter being obliterated by the process. *Parchment-paper* also promises to be of value for photographic purposes, and also for artistic uses, in consequence of the manner in which it bears both oil and water-color."*

When finished positive photographs are subjected to the above mode of treatment, a slight modification is rendered necessary, in consequence of the harder nature of the paper upon which they are printed. The following is a description of the manipulations, which owing to the powerfully corrosive nature of the acid, must be performed with great care:—

Take a good sound stoneware jug, holding about a pint, and stand this in the centre of a large pan. Measure out 8 fluid ounces of sulphuric acid of the above strength (oil of vitriol of commerce will generally be found sufficiently strong to be used), and pour it into the jug; then measure 4 ounces of water, and pour that into the sulphuric acid,—not hurriedly, but taking about ten seconds for the purpose. Stir the mixture now with a glass rod, cover the jug with a plate, and leave it until quite cold. Immediately the water and acids are mixed, great heat is evolved, and the necessity for taking the above precautions will be at once evident, since any breakage of the vessel through the sudden and great heat to which it is subjected, will be attended with the most destructive consequences to almost everything the acid touches.

Have ready three perfectly clean dishes, arranged side by side. No. 1 must be of good porcelain, quite dry, and in size about 10 by 12 inches. Nos. 2 and 3 should be very deep, and holding not less than half a gallon each. Into No. 1 pour the mixture of sulphuric acid and water. Nos. 2 and 3 must be filled with pure water, and into the latter a few drops of solution of ammonia must be added.

Now take the photograph (which must be quite dry), and, in the ordinary way, lay the picture-side on the acid, taking great care to avoid air-bubbles; then instantly lift it up, and lay the plain side on the liquid. This will not be at all difficult, as the wetted surface curls slightly *inwards*, the acid producing an opposite effect to that of water. Any part which is not covered with liquid is now to be gently pressed under with a glass rod or platinum spatula, and the sheet left immersed in the acid for a space of time varying between a quarter of a minute and two minutes, according to the kind of paper on which the picture has been printed. Canson's thin paper will require about 30 seconds; Canson's thick, 1 minute; thin paper Saxe, 20 seconds; Whatman's and Turner's, about 10 seconds, if the size has been well removed; but if they still remain non-absorbent, 2 minutes will not be found too long. After the sheet has soaked for the proper time, gently raise one corner out of the acid, and, guarding the thumb and finger from injury with a double fold of blotting-paper, lift it entirely out by means of this corner, and allow it to drain for a few seconds, then with a quick motion, completely immerse the sheet in dish No. 2, and move it about in all directions, so as to remove the strong acid from the surface as rapidly as possible. Lift it perpendicularly out of the liquid, and plunge it in again two or three times consecutively, and then transfer it to dish No. 3, where allow it to remain until the whole number of sheets are completed, or it becomes inconveniently crowded.

Dish No. 2 must be emptied and refilled with pure water, after about six sheets have been passed through it; and in dish No. 3 a piece of good blue litmus-paper should remain, and as soon as this shows the slightest tendency to become reddened, a few drops of ammonia must be added, and the whole mixed well together; for if any, even the slightest trace of unneutralized acid remain in the paper, after coming from this bath, the picture will soon be inevitably destroyed: thus the necessity of keeping the liquid in dish No. 3 alkaline will be evident; at the same time experimentalists must not forget that long soaking in ammonia is prejudicial to the half tints of the picture, and thus the *excess* of alkali must be but small.

After coming from the ammonia-bath, the sheets will want washing two or three times in clean water, and they can then be dried in any convenient way. The paper, when dry, will have an uneven, crumpled appearance, and will require either to be carefully mounted or passed between rollers, to render it smooth again.

Many of the advantages of this mode of treatment are obvious enough, *e. g.* the contraction and consequent increased sharpness, and the altered appearance of the surface, shown by the gloss and horn-like hardness. But another very probable advantage requires longer and wider-spread experience to render a certainty. My own impression is, that pictures so treated will be found less liable to fade than they otherwise are. It would, however, be very desirable if photographers generally were to experiment on this subject, by placing positives, altered as above, under conditions which they know from experience are likely to develope any latent tendency to fade. If other unaltered prints were exposed by their side to the same test, six months, or even less, would be ample time to try the efficiency of this possible solution of the all-important problem of fixing. W. C.

SOLAR PHENOMENA.

"Light was analysed by Sir Isaac Newton, and by that great philosopher pronounced to be a compound of seven primary colors. This analysis was effected by a triangular piece of flint glass—a prism—and although the fact is familiar enough to all, it becomes necessary to refer to the minute points of the experiment, that the reasonings of various experimentalists may have full consideration. If a small round hole is made in the window shutter of a darkened room, and the little sunbeam received upon a stretched sheet of paper a few yards from the hole, we obtain a well-defined, bright, round spot of white light. There are several plans by which this ray may be decomposed: if we merely place the point of a fine needle on the line of its path, so as to project a shadow on our screen, that shadow will be surrounded by fringes of color; if we fix a knife-edge so as to cut one side of the ray, it obeys the power which a solid mass is known to possess upon attenuated fluid bodies—it is bent, as for an attraction, and the spot now *partially colored* falls lower on the paper than it did. Lord Brougham has been investigating this fact, and he has proved, that a ray once *inflexed* cannot be again bent inward until it has been *deflexed*; and that a ray in like manner *deflexed*, must be again *inflexed*, before it will exhibit a renewal of the phenomenon of bending over an interposed solid.

"It must be remembered that the colors of natural objects are due to the decomposition of the white ray, surfaces having different powers of absorption and reflection, and consequently, of communicating to the eye the sensations due to the insulated rays, or their combinations.

"The prism, however, offers the easiest and most exact mode of analysing white light; and if this triangular glass is interposed in the line of the ray, instead of a circular white spot, a long, flame-like image is obtained, presenting the most beautiful bands of color which can be obtained by any artifice. The glass has refracted the pencil of light, and if the place of the white spot has been marked, the *prismatic spectrum* will be found to have shifted considerably. The ray which is the least refracted, according to Newton, is the red; the ray which is the most so, the violet. The order of these colored bands is red, orange, yellow, green, blue, indigo, and violet; and the Newtonian law is, that every colored ray has a given degree of refrangibility,—that a given degree of refrangibility implies a definite colored ray.

"Modern science has, however, added to the seven Newtonian rays,—by the researches of Sir John Herchel the chromatic scale has been enlarged to nine. If the spectrum is examined through a deep cobalt blue glass, a brilliant *crimson* band is detected below the ordinary red, as seen with the naked eye; and if the prismatic image is projected upon a piece of tumeric paper, a *lavender gray* ray becomes visible beyond the most refrangible violet.

"Instead of increasing the number of primary rays, all [many] cultivators of optical science are disposed to reduce them to three—red, yellow, and blue. Sir David Brewster has shown that these colors may be detected in every part of the spectrum, and that it is their blending only which produces the orange, the green, and the violet.

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* Photographs on this paper were exhibited at the Royal Institution.

"A closer examination of the conditions of the prism—of the undecomposed ray, and of the analysed result, the spectrum—tends to a conviction that secondary spectra always accompany the prime image, as the secondary rainbow is usually associated with the primary bow.

"If great care is taken in producing a prismatic spectrum, and the image is then examined by means of a small telescope, it will be seen to be crossed by numerous black lines. These are called the dark lines of Fraunhofer, as that celebrated optician of Munich was the first to investigate them. These lines are nearly six hundred in number; some of them are broad and decisive, others are exceedingly fine, and grouped together into bands. They are very constant in their positions, when examined under the same conditions, but they are altered in number by variations in the media through which the light permeates. These dark bands have been explained on various suppositions, all of which, however, are based on the undulatory hypothesis; and they have been generally thought to afford strong evidence in favor of a wave mode of progression. Such are the *luminous* phenomena of the analysed beam; the *calorific* influences as distinguished from them must now be examined.—*Mr. Robert Hunt, in the Quarterly Review, No. XXV.*

(*To be continued.*)

From the Jour. of the Phot. Soc.

ON POSITIVE PRINTING, AND THE CAUSES OF FADING.

BY MR. TUNNEY.

Positive printing may be divided into eight distinct operations: the salting or albuminizing of the paper; sensitizing; the exposure in the printing frame; washing the print from free nitrate of silver; toning the print with chloride of gold; fixing the print with hyposulphite of soda; washing and drying of the print; and lastly, mounting.

The first thing to be done is the selection of paper of a good even surface, the closer in texture the better. Many of the best qualities of the ordinary papers of commerce are perfectly suited for photographic printing, provided when a sheet is held betwixt you and the light, it does not present many irregularities and spots. The spots generally are metallic, and these entirely destroy a picture, especially if they occur in the light parts. These imperfections are too often to be detected even in the best papers manufactured for photographic purposes. The tone of the picture is considerably modified by the kind of paper selected, the French and German papers giving the blackish tone so much admired by some, and the English paper giving the sepia or bistre color. The French and German papers are generally sized with vegetable size; the English, all (or nearly so) with animal size. Particular care must be exercised in marking the smooth or right side of the paper before salting or albuminizing; this should be done in daylight, it being rather difficult to detect the smooth side by artificial light.

The first operation in preparing plain paper, is floating it on a solution of salt and water. If the paper is to be sensitized with common nitrate of silver, the solution should contain 15 grains of salt to 1 oz. of water; 1 grain of chloride of gold added to one ounce of solution much improves the after-tone of the picture.

The quantity of chloride used determines the strength of silver in sensitizing, that is to say, 100 grs. of chloride of ammonium contain as much chlorine as 111 grs. of chloride of sodium, and as much as 220 grs. of chloride of barium; so that the atomic weights of the salts must always be borne in mind. The albuminizing of the paper is considerably more difficult than the salting, from the tendency of the albumen to run in streaks.

Take any quantity of albumen, with an equal quantity of water, and 10 grains of chloride of ammonium, or 11 grains of chloride of sodium, or 22 grains of chloride of barium, to each ounce of the albumen and water. Whip the whole into a froth with a bunch of quills; then, after it has stood some hours, pour off the albumen, filtering it through a thick piece of cambric cloth: this last operation has to be repeated three or four times, in order to sufficiently clear the albumen from its stringy particles. The albumen being poured to the depth of ½ an inch into a porcelain or gutta-percha tray, the paper, cut to the proper size, is taken by the diagonal corners so as to be slightly curved, and the convex side is placed in contact with the albumen, gently lowered and pushed lightly forward, so as to free it from air-bubbles. The paper is allowed to rest on the albumen three or four minutes. It is then pinned up by the corner to dry; it is ready for the silver-bath, which should be of the strength of 60 grains to the ounce.

I may remark here, that after many fruitless attempts and a waste of many a quire of paper, I discovered a remedy for the streaking of the albumen formerly spoken of. It will be found that if about ½ an inch of the corner of the sheet of paper be folded backward so as to secure it from coming into contact with the albumen, the pin being put through this unalbuminized portion of the paper, will entirely obviate the annoyance.

The print should be printed a little darker than you wish it to be when finished, in order to make it withstand the toning and fixing baths.

The toning is done by washing the print thoroughly in cold water, in order to free it from all trace of free nitrate of silver. This done, it is then put into a bath of chloride of gold in the proportion of 2 grains to 5 ozs. of water. Any convenient number may be toned at the same time in this bath, care being taken that they be turned and moved continually, or innumerable patches of different colors will be the result. Having been toned to the desired tint, the print is now placed in a bath of hyposulphite of soda of the strength of 2 ozs. of the salt to 5 ozs. of water. The print should remain in this for not less than twenty or thirty minutes. In my experience, I have always found it better to use the same hyposulphite of soda a second day. By so doing you will avoid the yellow disagreeable color so objectionable in some albuminized prints. They are now taken from this bath and washed thoroughly with cold water and afterwards with from ten to fifteen changes of *boiling* water, if the prints are on English paper, and as many as thirty changes if they are on French paper.

It is particularly desirable that in the washing of the prints, not more than two should be put together in one vessel; afterwards well rinse in cold water and hang up to dry. I have always found boiled-starch the best of the many substances that have been recommended for mounting photographs.

From the Jour of the Phot. Soc.

LONDON PHOTOGRAPHIC SOCIETY.

ORDINARY MEETING.

MAY 7, 1857.

Sir W. J. Newton, Vice-President, in the Chair.

The minutes of the last meeting was read and confirmed.

S. S. Scriven, Esq. and P. Edgworth, Esq., were balloted for and duly elected Members.

The Chairman read the following letter referring to the decease of Mr. Frederick Scott Archer:

Haydon Hall, Eastcote, May 7, 1857.

To the President of the Photographic Society:

My Lord,—I regret that I should be prevented remaining in London to-night to attend the Meeting of the Society; but I hope it may not be against any rule to ask for the Society's sympathy for the widow and family of the late Frederick Scott Archer, that it may lend its aid and cordially assist in urging those claims on the public which have not been enough acknowledged during the life-time of this great advancer of photography. Very recently he had been engaged in experiments likely to lead to further improvements, but ill-health disabled his proceeding; nor can it be denied, I fear, but that feelings of disappointment, while reflecting on those he left being unprovided for, saddened his last sickness.

Hoping that the Society's voice may prove this communication to have been unnecessary, and with much respect,

I have the honor to remain, my Lord,
Yours faithfully,
J. R. Diamond, M.D.

Mr. Mayall.—It may not be out of place if I say a few words upon this subject, as I have had the honor of twice bringing the claims of Mr. Scott Archer before the Society. I have been in intimate communication with him during a great portion of his illness, and took my farewell only a few hours before his death; I am also empowered by his widow to read a portion of a letter which she has written to me upon the subject. It is a very painful circumstance that Mr. Scott Archer should have departed from among us, without having received that reward which I am quite certain he deserved at the hands of this Society, and of every gentleman; not only in England, but in Europe; not only in Europe, but in every portion of the civilized world. The great discovery which he so liberally, so generously gave, not only to us, but to every country where photography is practised, is one by which many of us have made reputations, and some, fortunes, and I am quite certain the Photographic Society only needs to have the matter properly brought before it, and the country will support and sustain any operations it may enter into. I very much regret that the gentlemen of the Committee did not in the first instance take some decisive course; for to that I attribute their non-success in obtaining subscriptions. I will not detain you more than a few minutes, but will read an extract from the last ' Quarterly Review.' It is very *a propos*, and the writer speaks of Mr. Scott Archer in much more eloquent terms than I can possibly do. He says—

" The Daguerre to this Niépce was a countryman of our own —Mr. Scott Archer, who is entitled to fame, not only for this marvellous improvement, but for the generosity with which he threw it open to the public—the characters of this agent add interest to the invention."

Speaking of the sensitiveness of the daguerreotype plate and paper, he says,—" The great luminary concentrates his gaze for a few earnest minutes; upon the albumen-sheathed glass he takes time more leisurely still: but at the delicate film of collodion—which hangs before him finer than any fairy's-robe, and potent only in invisible spells—he literally does no more than wink his eye, tracing in that moment, with a detail and precision beyond all human power, the glory of the heavens, the wonders of the deep, the fall, not of the avalanche, but of the apple, the most fleeting smile of the babe, and the most vehement action of the man."

I am quite certain that the discovery of such a wonderful fact in chemical science as this, ought long ago to have been rewarded by every man who has practised photography, especially when we consider the trammels to which the operations of photography were subjected previously to his discoveries. Mrs. Archer says, in her letter to me, "To-morrow there will be a meeting of the Photographic Society: in the morning we shall consign my dear husband to the grave in Kensal Green. I do not know if you will think fit to allude to this circumstance in the evening; you might add that myself and children are left totally unprovided for, and I have not the slightest doubt that this feeling shortened Mr. Archer's life. His health failing, he could not help regretting the time he had spent in mere experiments, instead of making exertions to provide for the wants of his family."

It is very painful to read a private letter of this kind, but I am sure the case will justify me; I trust we shall not separate this evening without making a very handsome subscription; I have already put my name down for ten guineas, I shall now make it twenty guineas. I am quite certain that with some gentlemen to form a Committee, and with an active secretary, if the members of this Society will represent the matter abroad (because it is from abroad we shall perhaps receive more than in this country), subscriptions will come in. We only want two or three names of influence in this country to head the list, and from America, and India too, I am sure we shall receive much, and I think also from portions of Germany. I am already in communication with very eminent photographers in China and the East Indies, and in almost every city in the United States. If we could induce Prince Albert to place his name at the head of the list, I am certain we should receive sufficient to place Mrs. Archer and her children beyond the reach of want, and I am equally certain that no Photographer ought to be satisfied until that is done. I would myself undertake the drudgery of the work, if the Council would appoint a Secretary and give the thing a *status* (loud cheers).

Mr. Fenton.—The Society is aware that a Committee already exists, consisting of Mr. Delamotte and myself. The thing has never been properly taken up, and now I think is the time for the Council to repair the past deficiency. Everybody must regret that what is now about to be done was not done before Mr. Archer had passed away, to let him see that his labors were appreciated. I would propose, that to the Committee already in existence be added the names of the President and Vice-Presidents of the Society, and Messrs. Anthony, Mayall, Pollock, Stokes, and Shadbolt.

Mr. Heath.—It seems to me if we act in a business-like manner, all that is necessary may be done in a week or so from this time. As a business man, I beg to offer my services.

(Several gentlemen having expressed their willingness to assist, but their inability to serve on the Committee, withdrew their names).

Mr. Fenton.—So far as the work is concerned, Mr. Mayall, Mr. Heath and myself will take it upon ourselves (cheers), and if power is given to add to the number of the Committee, we need trouble the Society no further about the business part of the matter. There is a subscription list now going round the room, and we are anxious to get as large a sum this evening as we possibly can (loud cheers).

Mr. Fenton's proposition,—"That the Archer Fund Committee consist of the President and Vice-Presidents of the Society, and Messrs. Mayall, Fenton and Heath," was put to the vote from the Chair, and carried unanimously.

A Member.—I think Mr. Archer has a large claim to that fund which is in the Royal gift, to reward men who have done good service to their country in Literature, Science and Art. If that claim could be established, I think it would be desirable, and I would recommend that some steps be taken through Prince Albert if possible, or in some other way, to obtain for Mrs. Archer some benefit or annuity from that fund.

The Chairman.—I may state that has been already done. A powerful memorial was drawn up by the Council and presented to Lord Palmerston, through our noble President. An answer was returned, though not quite satisfactory, and the matter may still be considered as proceeding. I have myself seen Lord Palmerston on the subject: the fund is very small; but I think the matter should be still further urged.

It was then suggested that the Council should be recommended to head the list with the sum of £50 from the funds of the Society; this was put to the vote from the Chair, and carried amid loud cheers.

The Chairman announced that the subscription to the Archer Fund amounted to about £160, including the Society's vote of £50.

The next Meeting will be held on Thursday, June 4th.

Personal & Art Intelligence.

— Very little has occurred since our last worthy of record. Both the suggestions we threw out, in our last, in regard to a Photographic Society, and aid to Mrs. Archer; the widow of the inventor of the Collodion process have thus far met with no response from any quarter. The shame be upon the heads of the Photographic community! we can take none upon ourselves. The shame be upon the Bradys, Gurneys, Lawrences, Meads, Fredericks, Beckers Harrisons, Whipples, Masurys, Chases, Richards, Banvards, Simons, aye! all of our eminent photographers! for to them it belongs—not to us. We have done all in our power to further these good works, and we can only regret that none of that public spirit and generosity which actuates all other classes of the community is totally void in the breasts of our American photographers. Yes, gentlemen, you are justly amenable to this censure so long as you remain in your present state of supineness and petty selfishness. Such a total want of public interest in the art is not only of the most shameful, but degrading character, and we are perfectly astonished that so many men could be found in any one profession who would willingly suffer the degradation—that so many men could be engaged in so great an art and all with perfect unanimity be willing to submit to be the laughing stock of their colaborers in other countries ; as well as of the amateurs of their own. Pshaw! we drop the subject in disgust. We refer to the proceedings of the London Photographic Society on page 222, and can only hope and pray that Mr. Mayall will not be disappointed in his expectations.

— Wm. Stroud—We forwarded one set of the photographs to you more than two months ago. On the receipt of your last letter we mailed a second with our own hands. Mr. Stroud thus writes of an incident, many similar to which are of constant occurrence:—

"I cannot refrain from mentioning here, in illustration of what you have frequently alluded to in the Journal, how some of the knowing ones who don't take the Journal, (and I fear some of them who do), have been victimized lately. I received your June No. yesterday, and had just finished reading the communication of your correspondent, John Rogers, of Pittsburg, on the *Patent Leather Process*, when an individual entered my room, who finally introduced himself as an operator from Rochester, N.Y., and produced some specimens of the *patent leather* process, and of course was exceedingly anxious to teach me the process! for a valuable consideration. He gave me the names of several to whom he had taught the art in Philadelphia and elsewhere; among others, Messrs. Mehan & Good, and (what I could scarcely credit), our friend M. P. Simons. If true, I think he got hold of them one day too soon. Hesler of Chicago, too, he claims as one of his pupils. However, I had opened the Journal too soon for him and he left; but victimized another individual before he took his final departure, one who does not take *the Journal;* but now says he will subscribe.

"I have only to add, that as soon as he had left my room I tried the process, as published in your *Journal*, with perfect success, and have every reason to believe, from what I have since learned, that his method is identical with this, at any rate, before he left our town I had both views and portraits to exhibit fully equal to his.

"This individual told me he had sold his method as high as $25, I believe he would have taken any sum, however small, I may have offered."

— Mr. John R. Rose has sent us two very good positives. It gives us great pleasure to be able to notice the successful progress of the photographic art in all parts of our country; but we should take still greater pleasure could we perceive, even a single ray of that good fellow-ship and intrinsic love of culture which should pervade every class of artists, and without which the art is made a means of selfish agrandizement. We trust, therefore, that the new devotees of this beautiful art who are daily springing up all over the land, will soon rise to shame the more grovelling spirits of our older artists.

— D. W. Grout—The missing numbers have been duplicated by mail.

— We consider one of the greatest inventions of the age (in photography), is Woodward's *Solar Camera.*" This is a very compact instrument for enlarging negatives of any dimensions to life size, and it is truly wonderful how accurately and perfectly the smallest negative is enlarged to a positive of any size without the least distortion. Positives taken by this camera are fully equal to those made by superposition. We shall probably give an illustration of this excellent aid to photography, with a full description of the instrument and the method of using it in our next. The advantages of this instrument are so manifold that we shall have to devote more space to them than we have at command in the present number.

— D. W. T. Moulton.—This celebrated photographic artist, has concluded—in order to meet the demand upon his time—to publish his excellent process in pamphlet form, for general circulation. We have no doubt it will meet with ready sale, as there can be no doubt that the pictures produced by it are of the most perfect description. We also understand that a man who is in the habit of doing such things has put forth a process which he calls "*Moulton's,*" but which, Mr. Moulton says, is a libel upon his reputation as an artist, and no faith should be put in it.

— We must answer several of our correspondents in one paragraph.—1st. It *is* true that a portion of the Hallotype patent has got into the hands of "the stock-jobbing photographer." 2d. We don't go about the country peddling processes taken from the English Journals as our own—all we hear, or learn that is new in the art we publish in the *Photographic and Fine Art Journal.* 3d. We don't sell formulas for 10, 15 and 25 dollars to all green enough to buy before inserting them in our Journal. 4th. We *do* know that a certain photographic pimp has circulated, by his venomous tongue, the assertion that *Our Journal* was a "Stock-Jobbing Concern;" but as it is only another of his vile falsehoods we have not thought proper to take any notice of it—he being beneath contempt. Are you all answered to your satisfaction? If not—as George Christy says, "propel further."

— We copy the following important piece of information from the Cleveland *Leader*:

"Photographs—A New and Valuable Discovery.—Hamilton L. Smith, Professor of Chemistry in Kenyon College, Gambier, Ohio, has made one of the most important discoveries of the age, in the Photographic Art. It consists in coating a glass plate with a limpid preservative liquid, which, after being dried is as sensitive (or nearly so) as the wet collodion process, and will remain sensitive for any length of time, if kept from the light. After exposure in the camera, the latent picture will also remain for months before being developed, and will then come out as intense as if developed the same hour it was taken. Prof. Wharton, late of Philadelphia, has gone to the far west, and taken with him four dozen plates, and a camera, with which to take views of the most picturesque scenery to be found, and develop the plates after his return to the States. How valuable this would have been to Colonel Fremont, and to Commodore Perry, in his Japan expedition. How valuable for taking views in any part of the world. This government should purchase the process, and give it to the world as France did the daguerrotype. The great advantages which will result from this discovery, to travelers, explorers, and topographical companies, will be evident at once. Fac similies of any locality could be taken in a few moments' time with nothing but the camera and the plate—and these can be repeated to infinity. This is the great desideratum which has so long baffled the ingenuity and science of experimentalists in this art, and which, it was feared, could not be attained. Its discovery is the result of long-continued study and experiment, and may be put down as a new and decided step in the march of science, as developed in the beautiful photographic art. As this process will greatly interest all practical and amateur Photographists in this country and Europe we will here state for the information of any and all who wish to make enquiries relative to the process, or purchase the same, that such information will be imparted by W. C. North & Co., Cleveland, Ohio. One State and several cities are already sold.

"All letters will be promptly answered that have enclosed a postage stamp.

"The process is far superior to the albumen, honey, or golden syrup processes, or any other now known."

If our *American* professors were like those of *other* countries they would be more liberal with their modifications of photographic formulas. Professor Smith will gain no credit for *selling* his.

From the London Art Journal.

THREAD AND FIBRE GILDING.

THE pressure on our columns arising from the imperative claims of the exhibitions of the season, and other matters directly connected with the Fine Arts, has compelled us to postpone until now our remarks on a paper read by Mr. Bennoch, of the firm of Bennoch, Twentymen, and Rigg, of 77 Wood Street, Cheapside, at the Society of Arts, in April last, "On Thread and Fibre Gilding."

The subject is one of national importance: and if the remarks of Colonel Sykes, the Chairman of the East India Company, who presided on the occasion, and took part in the discussion, are duly weighed by the manufacturers of England. it would appear that the process of gilding described by Mr. Bennoch may open up a demand in the East for fabrics adapted to the tastes of the people, that may go far to neutrallize the inconvenience now felt by the commerce of England in consequence of the excessive shipments of silver to India and China. Whatever portion of such demand can be supplied by the looms of England will be a national advantage

We transfer to our pages a large portion of the interesting paper, and trust our manufacturing readers will look into the matter, and ascertain for themselves whether they cannot to some extent carry out the suggestions we have offered. Since the paper was published in the *Journal of the Society of Arts*, considerable discussion has been excited on the subject. By command of Her Majesty the specimens exhibited when the paper was read were forwarded to the Palace, and some of them selected by Her Majesty, who, through Colonel Phipps, was graciously pleased to express her admiration of the fabrics.

Waiscoat-pieces and material for neck-ties have been produced by Mr. Sanderson, the enterprising silk manufacturer of Gresham Street, City; while Messrs. Kerr and Scott, the eminent shawl manufacturers of London and Paisley, are preparing specimens in their branch of manufacture, which we cannot help believing will become popular on all occasions of full-dress display. Some shawls made in France have struck us as exceedingly chaste and beautiful; while there is the fullest extent all the effect producable by the purest gold, there is an absence of of that objectional glitter and glare peculiar to mere tinsel. Those who wish to thoroughly understand, not only the new system, but also the process that has obtained for thousands of years, we confidently recommend to read the following remarks read by Mr. Bennoch:—

ON THREAD AND FIBRE GILDING.

When he consented to write a paper on the subject, he had resolved to confine his observations within the narrow limits of certain recent discoveries, in which he had become interested; but he soon found that, however interesting a paper so limited might be in itself, it would necessarily leave untouched the large and important subject of fibre plating, or covering threads of silk or cotton with gold or silver, so that the precious metals might be used with facility in the manufacture of gold and silver tissues. To clearly understand the several processes required for the production of such fabrics, it became necessary that he should refer to other and apparently distinct branches of industry, such as silver gilding and wire drawing. He therefore resolved to investigate the general subject, and bring the result of his inquiries within the space of a single address.

The History of ornamental jewellery from the earliest times —the purposes it had served—how and why rings, and chains, and bracelets, and wreaths, and crowns, became and continue indispensable ornaments, would form an instructive paper, but his duty was to confine his remarks to the production of threads used in the manufacture of woven or embroidered fabrics.

Innumerable references are made in the sacred writings to the liberal use of gold and silver, not only for personal adornment, but also for the highest ceremonial purposes.

In the Old Testament we are told (Jer. chap. x. v. 9), "Silver spread in plates was brought from Tarsish, and gold from Uphaz, the work of the workmen and of the hands of the founder. Blue and purple is their clothing, they are all the work of cunning men." It is evident from this and other passages that fire was used in puryfying the metal; that it was afterwards founded or cast into certain forms, preparatory to its being beaten or hammered, and fitted for the purposes for which it was intended.

The first important use made of gold was in the construction of the Ark of the Covenant, and Bezaleel, the son of Uri, the son of Hur, of the tribe of Judah, is described (Ex. xxxi. 2–4) as specially called, and by inspiration "possessed of all wisdom, understanding, and knowledge in all manner of workmanship, and to devise cunning works in gold, and silver, and in brass, and in cutting of stones to set them." Then (in Ex. xxv. 11) the *ark* is described as being "overlaid with pure gold within and without."

So in the building of the Temple (1 Kings vi. 21, 22), "Solomon overlaid the house within with pure gold, and he made a partition of gold, before the oracle, and he overlaid it with gold, and he overlaid the whole house with gold, until he had finished all the house, and also the whole altar that was by the oracle he overlaid with gold."

It is interesting and very suggestive to observe that, whereever the highest and holiest thoughts and purest motives ought to have existed, and where the objects were of the most sacred nature, the purest of all metals was enjoined to be used, and doubtless intended to symbolise the purity of the purposes to which it was applied. The functions of the priest were the loftiest and purest, and the temple in which he served was designed to last for ever; therefore, the purest metal was adopted as indicative of the purity and endurance of the priesthood and the temple.

After the construction of the ark and the tabernacle we have a description of the garments of the priest (Ex. xxxix. 3):— "And they did beat gold into thin plates, and cut it into wires to work it in blue, and in the purple, and in the scarlet, and in the fine linen, with cunning work."

As we are not told what breadth the plates were, it would be idle to speculate on the length of the wires. He apprehended, however, that the wires there referred to should not be understood to mean what the word now implied. When they remembered the marvellous particularly with which the minutest details in reference to the building of the temple, the tabernacle, the ark, and the woof of the priestly raiment, were described, he was persuaded that had the gold been *drawn* into lengthened wires the particulars of the process would have been given. In the absence of such information, and taking the facts as they lay before them, he arrived at the conclusion that the wire mentioned was only narrow sheds of thin gold, which, in all probability, did not in length exceed the width of the web from which the garments were to be made, and these webs need not have been more than a few inches wide. We shall, by-and-by, see that even now in the East certain robes are made of narrow strips, and the fashion may have been handed down from the time of the patriarchs.

From specimens shown it was seen that having succeeded in producing a wire of great length, it was used longitudinally as a warp, avoiding the difficulty experienced when the wire thread is passed from side to side, as in the weft or shute.

In covering the sacred places within and without with pure gold, it is not stated how the plates were fastened, and we very naturally, and perhaps truthfully conclude that they were rivetted or fastened with nails. The workmanship was doubtless exceedingly rude; at all events, they were justified in the opinion that had other means been employed they would have been fully described. This view is partly confirmed by the fact that the words "gilt" or "gilding" do not appear in the sacred writings, and there is no data determining the period when gold was first attached by an adhesive medium.

Although the system adopted in the East, and prevailing there at the present moment, may greatly differ from that which existed in the days of Moses, still, in his judgement, there must be some similarity. By ascertaining the method now persued in India, we may obtain a faint glimpse of the plan adopted by the earliest workers in the precious metals.

The city of Paithun, situated on the river Godavery, is famed for its manufactures in gold and silver tissues—viz. *pugrees*, or turbans, *doputtas*, or long shawls, and *sarees*, or women's robes. The highest quality of these several productions are sent to the courts of Gwalior, Baroda, and Hyderabad.

The long shawls which are thrown over the shoulders of the native princess on all occasions of state ceremonial frequently cost as much as 3000 rupees (£300) each. The weft is composed of very fine cotton thread, generally scarlet or green, the warp being of silk of a similar color. The shawls are sometimes in long strips of about an inch in width, and placed alternately a strip of scarlet and a strip of gold. The ends are of cloth of gold, about a yard in depth, and the whole shawl is surrounded by a rich border of flowers or birds in variegated silks, woven on a gold ground. Some of the sarees are made of thick shot silk in narrow strips, and finished in a similar manner; while others of the same texture, as the doputtas, are flowered, spotted, or striped with gold, and are about nine yards in length. They present a most gorgeous appearance, being in texture like the fine muslin gauze of ladies dresses, and it is by no means uncommon to have them of the value of 225 rupees (or £22 10*s)* each.

Dr. Royle, in his instructive lecture* on "The Arts and Manufactures of India," informs us that, "among the references to silk in ancient authors, there is also frequently mention made of gold and silver as interwoven with silk; even the Coan women are represented as interweaving gold thread in their silken webs, and Caligula as wearing 'a tunic interwoven with gold.' *Babylonicum* was the name applied to the splendid productions of the Babylonian looms These are described as being adorned both with gold and with variously colored figures. A peacock's train is compared to a figured *babylonicum*, enriched with gold; while *peplum*, the shawl, had the greatest skill and labor bestowed on its fabrication, and various objects were frequently represented on it; that worn by the Pastophori in religious ceremonies was richly interwoven with gold, and displayed various symbolical and mythological figures; while the *paragauda*—a word supposed to be of oriental origin—we learn was the border of a tunic enriched with gold thread, and worn by ladies. There is no doubt that it has long been the custom so to adorn garments in the East; and we had numerous such specimens sent to the Exhibition of 1851."

Mr. Bennoch then referred to the process that prevails in India in preparing the metal and the thread used in the manufacture of these truly gorgeous fabrics,

A rod of silver, weighing twenty-two rupees, or about eight ounces, after having been roughened by a file, is covered with a leaf of the best gold, weighing one rupee, so that gold forms one twenty-third part of the whole metal. The method adopted to make the gold adhere to the silver is very simple. The rod of silver having been wetted, the god leaf is laid on, and pressed with the fingers, and afterwards rubbed smartly on the thigh. The small portion of gold that may overlap hangs loose, and is cut off; the edges of the gold leaf that come in contact are beaten a little thinner than the body of the leaf, so as to secure, as nearly as possible, a uniform thickness.

The bar so prepared is heated in a pan of charcoal till it becomes redhot. It is then taken out and hammered, and rubbed with a piece of wood, and is ready to undergo the first process of being drawn into wire. The rod is, at this time, about the thickness of a man's thumb, and from six to eight inches in length. In the wiredrawer's house there is a pit dug in the floor, about thirty inches deep, containing a rude horizontal wooden cylinder, or beam, turning on pivots fixed into each end, placed in sockets at the side or end of the pit. In this cylinder are fixed four handspikes, over one of which is slipped a ring, to which is attached a chain, with a ring, at the other end. Through this ring is slipped the head of a pair of pincers, in the jaws of which is placed the end of the gilt bar, which had previously been hammered at one end, so as to enable it to pass through the hole pierced in a steel plate; through this hole the bar has to be drawn, and, being drawn, is reduced in diameter, and proportionably increased in length. The handles of the pincers being considerably wider than the head, and the ring gripping both handles, it follows that the greater the strain on the handles, the closer the grip of the jaws. The hold is tightened by placing a small piece of mica between the rod and the jaws of the pincers. One man holds the rod steadily and straight to the die, while another man turns the cylinder by pulling with his hands, and pressing with his feet, the handspikes, in the same way as we occasionally see the steersman at the wheel of a rudder of a large ship. As the cylinder revolves, the rod of metal lengthens, and winds round the cylinder To lessen the friction in passing through the holes, the rod is invariably rubbed over with wax.

Having passed through the holes in the steel plate, each hole being a degree finer than the other, the wire is coiled up and re-heated, or annealed, by which it is softened, or made more malleable. Were this precaution omitted, the wire would become brittle, and break like cast metal. This process of drawing and heating is repeated over and over again, until the wire is reduced to the substance of ordinary whipcord, and it then passes into other hands. The importance of the division of labor is here recognised. The hands best adapted for the heaviest processes are altogether unfit for the more delicate branches of the business.

The workmen into whose hands the wire is now placed sit at a small bench, on which are two reels, or large bobbins, a short distance apart, on one of which the wire is wound; midway between them is fixed edgeways a frame, with a steel plate pierced with fifteen or twenty holes of different degrees of fineness. To make the wire pass easily through the finer hole, it is rubbed at the end between two pieces of porcelain, then slipped through the hole—caught with a pair of nippers, and attached to a limb or spoke of the empty reel, which is turned by the hand, and the wire is drawn through with perfect ease. This operation is continued and repeated until the wire becomes as fine as the finest hair.

In this state it cannot be used, for it is too weak to be woven, and must be united with some other fibre before it can be worked in the loom; and being round, it will not readily attach itself to the tread. It therefore becomes necessary that it should be flattened. This is done by beating it with a highly-polished steel hammer, on an anvil equally well polished, as the least flaw would damage the wire.

Eight or ten threads are wound on as many several small reels, like cotton spools. These are placed in two rows, on pegs fastened to a board, so as to turn horizontally. The several ends are passed through a row of small holes pierced in a piece of thick fish-skin attached to the anvil with wax—the holes being level with the surface of the anvil, and the gold wires pass on to the anvil separately, yet near each other. The operator seizes all the threads with the left hand, and draws them gently across the anvil, while with the right hand he hammers them as they pass. With one stroke he flattens the eight or ten wires with such remarkable skill that scarcely any difference can be detected in the width of the flattened wire, so accurately is each blow given.

The flattened wire now passes into the hands of a spinner or plater of gold thread. The process is very interesting. The orange-colored silk is wound round two spindles, such as are used for spinning cotton or wool—the ends of the two threads are passed through a ring fastened to the ceiling of the room, and both bobbins are brought to an equal height from the ground; by being rubbed sharply along the thigh they are set in motion in opposite directions, and spin round with great velocity. As they spin, the gilt wire, flattened as described, and guided by the left hand, is wound round the threads with an evenness and regularity almost incredible, considering the rudeness of the implements used; and our surprise is greatly increased on examining the articles afterwards manufactured.

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* See "Lectures on the Results of the Great Exhibition of 1851; delivered before the Society of Arts." 2 vols. 8vo. Bogue, London, 1852-3

In this very concise description of a most interesting branch of industry there are several facts of detail omitted which it would have been well to have had supplied—such as the time occupied in bringing the rod of six inches long into the wire as fine as hair—the length of the hair so drawn—the value of the labor so condensed, and sundry other points, without which we cannot satisfactorily arrive at any economical result. These omissions, however, are amply supplied by the processes adopted in London. The same, or very similar methods, prevail in the several cities of Europe where the manufacture of gold lace is encouraged, but he confined himself to what he had seen, and in this branch of his paper he was much indebted to the courtesy of Messrs. Johnson, Simpson, and Simons, whose works had been thrown open to him, and to Mr. Simons he was indebted for many of the details.

Silver being the basis of what is technically called gold thread, it is well to consider what silver is best for the purpose. The siver in greatest favor with wire-drawers is extracted from lead. This may probably retain a certain portion of the nature of the ore with which it was previously in combination, and may be tougher than that obtained from other mines. The manner in which the silver is separated from the lead is very simple, and most interesting. Without detailing the several processes practised by various miners, he referred to an improved plan in operation at the lead mines of the Duke of Buccleuch, at Wanlockhead, in the high district of Dumfriesshire. The process is founded on the property which bodies possess of separating from each other during crystallisation. The argentiferous lead is melted in a large vessel, and the temperature is arranged to such a point, that the lead becomes crystallised. The Crystals of pure lead are then removed as soon as formed, by means of a large iron ladle, pierced with holes, and the silver is thus left combined with a smaller portion of lead, which thus gradually becomes more and more rich, until, by successive operations, it is brought to such a state, that further separation can be advantageously effected by the ordinary means of cupellation.

The facility with which silver can be thus separated from the lead gives the owner the advantage of making the lead of the required richness. He need hardly tell his audience that the quality of lead depends greatly on the quantity of silver combined with it. The silver so produced come to the market usually in the form of a cake, and is afterwards melted and grained. A certain quantity is weighed—say from 400 to 500 ounces,—and placed in a crucible, or, in the common language of the trade, a *pot*, which is placed in a charcoal fire, and there remains until the metal is of nearly a white heat. The best crucibles for such purposes are of American manufacture, composed of black-lead and a mixture of a peculiar clay. When heated as described, it is ready to be poured into the ingot moulds. These moulds are made of iron, and sometimes of copper; but it has been proved by experience that the iron mould is the best, because the copper moulds, after being used a given number of times, are liable to fracture. Before pouring the metal into the mould, it is important that the mould itself should be heated to a certain point. Unless this is attended to, steam or gas is generated and causes a spurting of the metal, producing air-bubbles, or flaws, in the ingot, and any imperfection of that nature produces an ultimate defect in the wire. The ingot mould is in two pieces, kept together by very strongs clamps and screws. When the metal is sufficiently set, the screws are loosened, the mould separates, and the ignot of silver falls easily out. The ingot so cast is about two inches in diameter, and from twenty to twenty-four inches in length. The bar, or ingot, is then placed in a charcoal fire until redhot, whence it is taken and held and turned on the anvil by one man, while three others, with heavy hammers, hammer it well. This beating and hammering continues until the bar is reduced to a size suitable for the first hole, or die, through which it has to be drawn, and by the hammering is increased in length from four to five inches, or about twenty per cent. The hammering, so fiercely applied, changes the nature of the metal precisely in the same way as iron is changed by rolling and hammering, laying all the fibres one way, and proportionably increasing its tenacity and elasticity. The bar so prepared is pointed, and made to fit the first die through which it has to pass, and laid on the draw-bench with the point slipped through the die. The point is then seized by the jaws of a pair of monster pincers, or draw-tongues, with short bow arms, at the end of each of which is a hook that slips over a ring, attached to the end of a strong chain cable, drawn by a steam-engine exerting the power of sixteen horses. The greater the draught the tighter the grip, and the ingot passes through the first die with the greatest ease, and is reduced in diameter, but increased in length from ten to fifteen per cent. This process is repeated ten or twelve times, each time the rod being drawn through a smaller die. The bar is then removed to another bench, where it is planed so as to remove all roughness or other imperfections on the surface as the slightest blemish would interfere with perfect gilding—such blemishes being best detected by placing over the bar a sheet of foolscap paper, slightly arched, which by its reflection shows every speck instantly and most distinctly. The bar of metal, being so prepared, is considerably reduced in weight as well as in size, and is now ready for gilding. As the richness of the wire depends upon the thickness of the gold laid on, and as all the gold leaves are very nearly, if not absolutely, of the same substance, the quality of the wire is regulated by the number of leaves placed one over the other, and these vary from ten to thirty leaves. The higher qualities are used for military purposes, and pearls and bullions for embroidery. The lower qualities being in demand chiefly for liveries, for the ends of muslins, and also for skein thread exported to India and China. The gold leaves, whether of the depth of ten or thirty, are laid in a row side by side, nearly the length of the bar, on a piece of ordinary cartridge paper; the bar is gently laid on the leaves, pressed close, and the edges of the leaves raised up until the silver is entirely covered with gold leaf; there is no size or foreign matter whatever used; because any such matter would, in the fire, prevent perfect cohesion. Nor is there any water used, as in the Indian process—the natural affinity of the highly-polished silver to the gold appears to be sufficient. The bar so overspread with leaf and enveloped in paper is tied tightly round with cord, and placed in the centre of a heap of lighted charcoal, where it remains until it assumes a bright red heat. One would imagine that the paper must instantly take fire and disappear, but such is not the case. The atmosphere being carefully excluded, it gradually becomes red with the metal, and when the paper has been entirely consumed, the bar is nearly ready to be withdrawn. While redhot, it is placed on a frame, or bench, and vigorously burnished with a blood-stone—a substitute for which, and nearly as good, has been found in a stone discovered in the South Seas, probably the same as that from which the natives of those islands make their spear-heads, hatchets, and weapons of war. This burnishing serves a double purpose—it forces out any air that may have remained between the gold and silver, and at the same time brings them closer together. When quite smooth, it is permitted to cool gradually.

When quite cool, the surface is covered with wax, and then commences the more rapid reduction of size by drawing the bar through graduated steel dies, highly-polished, as the slightest roughness would damage the metal, and although it might now pass undiscovered, by-and-by it would show itself in defective wire. These slight physical defects, like moral flaws, cannot be always hid, but, sooner or later, will appear on the surface. When reduced to the size, technically called *disgrossed*, it is annealed, care being taken to exclude the air from the surface, otherwise the gold, being now so thin on the silver, would partially melt, and present a blackened appearance. After remaining in the fire about an hour, it is placed under other superintendence, and removed to other machinery, moving with greater speed, and rapidly passes through a number of finer holes, each decreasing in size until it is reduced to the size he held in his hand. After this it is heated and drawn through a hole, which removes all wax and dirt from the surface.

The steel dies are then dispensed with, because, from experience, it had been found that the holes were liable to become what wire drawers call square; and, until within a comparatively recent period, the ounce of metal could not be drawn into more than 900 or 1000 yards.

One of the firm to which he was so much indebted was the first to suggest an experiment with a jewelled die. Many difficulties were at first experienced, but all were overcome, and a perforated ruby, set in a metallic frame, answered admirably, and enabled the drawer to produce, from one ounce of metal, a wire a mile and a quarter long, and finer than a lady's hair. In connection with this discovery, it is somewhat singular that there are not more than three men in London capable of perforating and setting these ruby dies properly; one man, who works probably not more than three hours a day on the average, has received from one wire-drawing firm as much as £500 or £600 in a single year, while they only pay from 4*s.* to 5*s.* for each die.

Presuming that the finest point is reached, it is found that the color is not so rich and deep a shade of yellow as fashion desires. To effect this a very simple and ingenious plan is adopted. The wire is wound round a copper cylinder, a small portion of wax being added; the bore or cavity of the cylinder is filled with redhot charcoal, made from birch wood, that being found the best; so the wire in its finest state is again annealed; and what appears singular, the color is deepened and rendered permanent.

It is now ready to be flattened preparatory to spinning round the silk, and this is accomplished by winding it from the copper cylinder on to small bobbins, ready for the flatting-machine, which is very simple and very small. There are only two rollers for it to pass between, the one being about ten and the other four inches in diameter, and two inches wide, slightly convex on the face.

To impress a substance as fine as a hair, and flatten it to twice or treble its original width, requires the nicest possible adaptation of parts. They would not be surprised to hear that a single pair of rolls cost £120. The metal is of the rarest quality of steel, and the polish higher than the finest glass. At one time these rollers were made in Sheffield, but now they are manufactured in Rhenish Prussia.

The wire so flattened is now wound on small bobbins, which are placed in the centre of circular rings, attached to a bar over a spinning-frame. On the front of the frame are bobbins of silk, the threads of which pass through the centre of the ring to which the reel with wire is fixed. The whole is set in motion, and while the thread is being twisted, the ring with the wire revolves round the thread in the opposite direction, and thirty or forty threads are plaited at once—one girl attending to them all; and so the gold thread is finished, and ready for any purpose the consumer may require.

In its new form, though only gold is seen, probably nine-tenths of its bulk is silk, while of the remaining one-tenth only one-fiftieth part is gold; so by labor and ingenuity they were put in possession of a gold thread, of which only one part in five hundred is in reality gold.

It was important to ascertain the quantity of labor required to reduce the ingot of silver, weighing 420 ounces, to the finished wire, weighing 360 ounces, 60 ounces having been cut off—not destroyed—in the several processes of pointing, plaining, and occasional accidental waste;—

	Hours.
To reduce the ingot to the size when it is cut into 10 equal parts, of about 36 ounces each, takes 3 men 20 hours each	60
To reduce from hank to firing off size takes, for each hank, 1 man 5 hours, or for 10 hanks	50
To reduce from firing off to 300 yards per ounce size takes, for each hank, 9 hours, or for 10 hanks	90
To reduce 300 yards to 1200 yards per ounce size takes, for each hank, 18 hours, or for 10 hanks	180
To reduce from 1200 yards to 1800 yards size takes, for each hank, 25 hours, or for 10 hanks	250
If reduced to 2000 yards, each hank would take at least 7 hours, or for 10 hanks	70
	700

Allowing ten hours to the day, it would take one man seventy days or ten weeks to reduce by his labor the ingot of silver, weighing 420 ounces to its finest size. But no one man is equal to the entire duty. The early processes demand the exercise of Titanic powers, while the later processes demand the lightest touch of almost fairy fingers.

In constructing the foregoing table, he had some difficulty, from the fact that, so far as he could discover, the question had never before been looked at from the labor-consumption point of view. There may be some errors, arising from imperfect information, but he believed it would be found sufficiently accurate to enable them to estimate the labor necessary to make four hundred ounces of gold, in a bar twenty inches long, stretch over five hundred miles. Fifty such bars would bind the earth with a golden hoop. But as the four hundred ounces of silver is gilt with only eight ounces of gold leaf, each leaf weighing eighteen grains, and four inches square, it follows that only one-fiftieth part of the wire is gold. So eight ounces of gold in combination with silver is made to stretch five hundred miles, or over sixty miles for a single ounce. Nothing can more clearly show the wonderful ductility of this most wonderful metal. One would imagine that in passing through so many holes, the gold would be liable to be scraped from the surface of the silver; but it is not so. In passing through the die every atom of the metal is excited and stretched simultaneously, each atom retaining its relative position. As, from first to last, the wire passes through one hundred to one hundred and twenty dies, it follows that the ingot in its course traverses over fifty thousand miles, or twice the circumference of the globe.

Before passing to the last division of this paper, a few observations might be permitted, marking the differences that exist between manual and mechanical labor, as suggested by the Indian and English processes of wire-drawing.

In London five hundred ounces of metal could be drawn into wire while ten are drawn at Paithun.

In London it can be drawn 2000 or even 2200 yards to the ounce, while in Paithun they stop short of 1000 or 1200 yards.

In London the manufacturer depends upon mechanical ingenuity, which enables comparative children to execute a very large proportion of the work; while in India, age and great experience are essential to the production of a marketable commodity.

The difference will increase year by year. Electro-gilding in some way or other must, sooner or later, supersede the present process. Whether its application shall be to the bar of silver in bulk, or to the completed wire, he could not determine; but looking at the conditions of the trade, considering the scientific principles involved, and the chemical processes that may be applied, he had no more doubt of the result desired being accomplished than he had in his own existence.

Certain it is that, ere long, English industry will supply India, and probably China, with all the prepared thread they require for the production of their sumptuous robes: the only surprise is that English enterprise and English looms had not long ago supplied those distant countries with the manufactured article.

When they considered the consumption of the precious metals—the no less precious money, and the still more precious labor consumed in the manufacture of gold thread—it was not only not satisfactory, but very humiliating, to confess that a very large proportion of the quantity produced was flung away and wasted—much being consumed in bars of gold shot in at the ends of webs of muslin or other cloth, to produce an attractive finish, which, when purchased for consumption, was torn off, and cast into the fire.

Having entered so fully into the details of wire-drawing, flatting, and spinning, he now came to the new and patented plan of

FIBRE GILDING.

For many years chemists had attempted every known method of gilding, in the hope of discovering some process by which silk, or other fibre, could be gilded without applying the immense labor, seen to be necessary, before a thread with a covering of gold can be used with facility in the loom, and woven into cloth, but they always failed. In France, where scientific research is liberally promoted by the government, a large reward was offered for a successful plan, but no man ever had the opportunity or satisfaction of claiming it. The electro process gave a fresh impulse to scientific men.

The difficulties of the first stage were soon overcome, and gold was compelled to attach itself to the surface of the thread. Here a new difficulty arose—the thread, being completely soaked, was long in drying, and when dried had lost its lustre; while the foundation on which the gold rested was so soft and flimsy, that to burnish it was impossible. They only produced a gold thread which had not the effect of gold, and was therefore useless. Among the several investigators was Mr. Albert Hock, who, failing to find in chemistry the principle by which fibres could be gilded, succeeded by means of a simple mechanical contrivance.

In the first place, it is essential that the silk used should be of a superior quality, free from knotty nibs and rough places. The gum must be boiled out of the silk, and the silk tinged to the shade of a light orange. The bobbins containing the silk are placed on a wire, on which they revolve when gently pulled. The end of the thread is passed over a wire, and then under a roller, which works in a trough containing a glutinous but transparent liquid. It then passes over a reel attached to an endless screw, or threaded spindle, so arranged that it lays on a brass cylinder the thread of silk as close as cords are wound round the handle of a whip, without overlapping, until the cylinder is completely covered with the silk, when the thread is broken; the length of the skein of thread depends, therefore, upon the size of the cylinder and the fineness of the thread, but the cylinder cannot be increased beyond a certain size, and that size must not be larger than can be spanned by a single leaf of gold, and the goldbeaters will not produce it larger than three and five-eighths of an inch square. When the leaf was to be four inches square, the London goldbeater declined the order, advancing as a reason, that, were he to demand such a size, every journeyman he had would strike and leave him. The gold leaf was procured from France—another instance of the mischief done to commerce by trade combinations.

The cylinder being covered with silk in a gummy state, the book with the gold leaf is opened, and laid on the palm of the hand; the machine—something like a turning-lathe—is moved; the edge of the leaf is made to touch the gummed silk. This is repeated until the entire surface of the silk on the roller is covered with gold leaf. A piece of cloth or washed leather is fastened on a slip of wood, something like a razor-strop. The roller is turned round, and the strop pressed firmly upon the leaf, which not only presses the leaf closer to the silk, but separates the leaf between each of the windings of the finest thread; and so one side of the finest thread is gilded. It is thus apparent that if gold and green, or any other color, is desired in combination with gold, it is only necessary, first, to dye the thread the color required, and then, by gilding one side, the combination wished is secured. To gild the entire thread, the half-gilded thread is wound on to another roller. The gilded side of the silk thread necessarily winds next to the brass on the second roller, leaving the ungilt part of the thread exposed. and ready to be treated in the same manner as before described, and so the process is completed. It is then wound on to reels of the usual size, and permitted to dry thoroughly. After this it is reeled on boards, or, as the French call them, *planchettes*, and is ready for the market. The color is very beautiful, being the natural color of the gold leaf. The great advantage of this over every other thread is its lightness and perfect flexibility, for it can be wound and woven wherever any other thread can be wound or woven. Its only disadvantage consists in the impossibility of producing by this process that tinselled and glaring effect which ladies seem to consider a prime essential wherever gold is used. In reality it is a new but very expensive color. The sizes of the threads are regulated by the number of ends of silk wound round the roller at once. The substance used for attaching the gold leaf to the threads unites them, and brings them into one thread.

As regards cost, it is, size for size, considerably dearer than the ordinary gold thread; but as it measures a much greater length for the weight, it virtually becomes, for weaving purposes, very much cheaper. The finest ordinary gold thread measures about 550 yards to the ounce, and costs about eight shillings. A similar size of silk, gilded by the new process, weighing one-third the weight, and measuring the same would not cost over five shillings. Where fine gold leaf is used it is untarnishable; but copper can be used with the same facility as gold, and costs little more than half the price, while for ordinary purposes it answers quite as well.

In France there is considerable demand for, and a steadily increasing consumption of, the material. Whether the manufacturers of England will enter the lists, and endeavor to compete with their enterprising neighbors, it is difficult to determine. The patentees seem to have received less encouragement than they had a right to expect from the manufactures of the United Kingdom.

ON THE CHEMICAL COMPOSITION OF THE PHOTOGRAPHIC IMAGE.

BY T. F. HARDWICH.

The determination of the chemical nature of the photographic image, in its various forms, is a point of much importance, both as indicating the conditions required for the preservation of works of art of that class, and also as a guide to the experimenter in selecting bodies likely to have an effect as chemical agents in photography.

It has been stated by some who have given attention to the subject, that the image is formed in all cases of pure metallic silver, and that any observable variations in its color and properties, are due to a difference in the molecular arrangement of the particles. But this hypothesis, although involving much that is correct, yet does not contain the whole truth, for it is evident that the chemical properties of the photographic image often bear no resemblance to those of a metal. One photograph may also differ essentially from another, so that we are led to infer the existence of two varieties, the first of which is less of a metallic nature than the second.

In investigating the subject, the principal point appeared to be to examine the action of light upon chloride of silver, and afterwards to associate the chloride with organic matter in order to imitate the conditions under which photographs are obtained

The following is an epitome of the conclusions arrived at:—

Action of Light upon Chloride of Silver.—The process is accompanied by a separation of chlorine, but its product is not a mere mixture of chloride of silver and metallic silver; if it were so, we cannot suppose that the darkening would take place beneath the surface of nitric acid, which it is found to do. A definite subchloride of silver seems to be formed, the most important property of which is its decomposition by fixing agents, such as ammonia, and hyposulphite of soda, both of which destroy the violet color, dissolving out protochloride of silver, and leaving a small quantity of a grey residue of metallic silver.

Inasmuch, therefore, as all photographic pictures require fixing, we may conclude that if they could be produced upon pure and isolated chloride of silver (which, however, is not the case), they would consist solely of metallic silver.

Decomposition of Organic Salts of Silver by Light.—Compounds of oxide of silver with organic bodies, are as a rule darkened by exposure to light, but the progress does not always consist in a simple reduction of the metallic state. This assertion is proved by the employment of the following tests:—

a. *Mercury.*—Little or no amalgamation takes place on triturating the darkened salt with this metal.

b. *Ammonia and Fixing Agents.*—These usually produce only a limited amount of action. Thus, the albuminate of protoxide of silver is perfectly soluble in ammonia; but after having been reddened by exposure to light, it is little or not at all affected.

c. *Potash.*—Animal matters coadjulated by nitrate of silver, and reduced by the sun's rays, are dissolved by boiling potash, the solution being clear and of a blood-red color. Metallic silver, it is presumed, if present, would remain insoluble.

d. *Boiling Water.*—Gelatine treated with nitrate of silver and exposed to light, loses its characteristic property of dissolving in hot water. This experiment is conclusive.

The above facts justify us in supposing the existence of combinations of organic matter with a low oxide of silver; and analysis indicates further that the relative proportion of each constituent in these compounds may vary. For instance, when citrate of silver is reduced by light, and acted on with ammonia, a black powder remains, which was found to contain as much as 95 per cent. real silver; but albuminate of silver treated in the same way yields on analysis less of metallic silver, and more volatile and carbonaceous matter.

The use of *ammonio*-nitrate of silver in preparing the salt tends also to increase the relative quantity of metal left in the compound after reduction and fixing. The length of time during which the light has acted, has also a modifying effect of the same kind,—the product of reduction by a powerful light being more nearly in the state of metal, and containing less both of oxygen and organic matter.

Action of Light upon Chloride of Silver associated with organic matter.—Photographs formed on chloride of silver alone, would, after fixing, consist of metallic silver, but such a process could not be carried out in practice. The addition of organic matter is absolutely necessary to increase the sensitiveness, and to prevent the image from being dissolved in the bath of hyposulphite of soda. The blue subchloride of silver is decomposed by fixing, a very scanty proportion of grey metallic silver remaining insoluble; but the red compound of suboxide of silver with organic matter is almost unaffected by hyposulphite of soda or ammonia.

The increase of sensitiveness and intensity produced by the use of organic matter is accompanied also by a change in the composition of the picture; the image losing the metallic character which it possesses when formed on pure chloride of silver, and resembling in every respect the product of the action of light upon organic salts of silver.

There are certain characteristic tests which may usefully be employed in distinguishing the metallic image from what may be termed the organic or non-metallic image. One of these tests is cyanide of potassium. An image formed upon pure chloride of silver, although pale and feeble, may, after fixing, be immersed in dilute solution of cyanide of potassium without injury. But a photograph on chloride of silver supported by an organic basis, is much acted upon by cyanide of potassium, quickly losing its finer details.

A second test is the hydrosulphate of ammonia. If no organic matter be employed, the image becomes darker and more intense by treatment with a soluble sulphuret, whilst the non-metallic image, formed on an organic surface, is quickly bleached and faded. The action of sulphur upon the image is indeed a mode of determining the real quantity of silver present. When existing in a very finely divided layer, sulphuret of silver often appears yellow: but in a thicker layer it is black. Hence the color of the photograph after treatment with sulphuretted hydrogen is an indication of the proportion of metal present, and the reason of the organic image becoming so perfectly faded is because it contains a minimum of silver in relation to the intensity. We see, therefore, that the addition of organic matter to chloride of silver does not so much increase the actual quantity of silver reduced by light, as it adds to its opacity by associating other elements with the silver, and altogether modifying the composition of the image.

The employment of *oxydizing agents* shows also that in an ordinary photographic process by the direct action of light, other elements besides silver assist in forming the image; the pictures being found to be easily susceptible of oxidation, whereas the metallic image formed on pure chloride of silver resists oxidation.

Composition of DEVELOPED *images.*—By exposing sensitive layers of the iodide, the bromide, and the chloride of silver to the light for a short time only, and subsequently developing with gallic acid, pyrogallic acid, and the protosalts of iron, a variety of images may be obtained, which differ from each other materially in every important particular, and a comparison of which assists the determination of the disputed point.

The appearance and properties of the developed photograph are found to vary with the existence of the following conditions.

1st. *The surface used to sustain the sensitive layer.*—There is a peculiarity in the image formed on *collodion.* Collodion contains pyroxyline, a substance which behaves towards the salts of silver in a manner different from that of most organic bodies, exhibiting no tendency to assist their reduction by light. Hence chloride of silver on collodion darkens far more slowly than the same salt upon albumen, and the image, after fixing, is feeble and metallic. Iodide of silver on collodion, exposed and developed, gives usually a more metallic image, with less intensity, than iodide of silver, upon albumen, or on paper sized with gelatine. By adding to the collodion a body which has an affinity for low oxides of silver, such for instance as glycyrrhizine, the opacity of the developed image is increased.

2nd. *The nature of the sensitive salt.*—When *iodide* of silver is used to receive the latent impression, the image after development, although lacking intensity of color by reflected light, is more nearly in the condition of metallic silver than if bromide or chloride of silver be substituted; and of the three salts, the chloride gives the most intensity, with the least quantity of metallic silver. This rule applies especially when organic matters gelatine, glycyrrhizine, &c., are present.

3rd. *The developing agent employed.*—An organic developing agent like pyrogallic acid may be expected to produce a collodion image more intense, but less metallic, than an inorganic developer, such as the protosulphate of iron.

4th *The length of time during which the light has acted.*—Over-action of the light favors the production of an image which is dark by reflection and brown or red by transmission, corresponding in these particulars to what may be termed the non-metallic image containing an oxide of silver.

5th. *The stage of the development.*—The red image first formed on the application of the developer to a gelatinized or albumenized surface of iodide of silver is less metallic, and more easily injured by destructive tests, than the black image, which is the result of prolonging the action. Developed photographs which are of a bright red color after fixing, correspond in properties to images obtained by the direct action of light on paper prepared with chloride of silver, more nearly than to collodion, or even to fully developed Talbotype negatives.

To conclude the paper, the following may be offered in the way of recapitulation:—An image consisting of metallic silver, as a rule, reflects white light, and shows as a positive when laid on black velvet; but a non-metallic organic image is dark, and represents the shadows of a picture. Collodion positives developed with protosalts of iron are nearly or quite metallic. Photographs on albumen or gelatine less so than those on collodion. Developed photographs contain more silver than others, if the development has been prolonged. The half shadows of the image in a positive print are especially liable to suffer under injurious conditions, since they contain the silver in a less perfect state of reduction.—*Photographic Chemistry, Fourth Edition.*

BEWARE of American Patent Photographic Formulæs.

From the Cosmopolitan Art Journal.

AMERICAN PAINTERS.

THEIR ERRORS AS REGARDS NATIONALITY.

Who ever has sauntered through the immense picture galleries of Versailles, or lounged within the minor one of the Luxembourg, must have learned to appreciate the national heorism of modern French artists in sacrificing the requirements of antique picture-worship to the emergencies of popular taste. While the quadrangle of the Louvre, a cosmopolitan exposition of paintings from every clime, executed in almost every age, allures to its portals the host of sight-seekers and spectacle admirers of Paris, the regal chateau of Versailles has long been *par excellence* the resort of Parisians, who, viewing art in its poetic development, admire its pictorial treasures with an admiration and intensity, incapable of being engendered within the bosom of one not essentially a Frenchman by birth and nature. The stranger crossing the threshold of the palace, marvels at the amplitude of its painted wonders. He may pause to examine critically the merit of the paintings therein contained, the accuracy of their coloring or the comprehensiveness of their design; he is emphatically a mere spectator, alive to the beauties of art, but untouched by the spirit which calls forth their delineation. But the true Frenchman regards these thousand and one portraitures of scenes past and passing in an egotistical point of view, and consequently enters into the completed design of the artist with an enthusiastic vigor, assimilating to the zeal of the author, actuating the production of the work unfurled to his admiring inspection, and thus identifies himself in soul with the creator of his emotions. The French artist has thus accomplished his mission, for he has bestowed upon his handiwork a quality infinitely superior to perfection of mechanical art, by conferring on his critic a sentiment of nationality without experience of which the exercise of art would be aimless. And this very nationality, this irresistible power of fascination, alluring to admiration all classes of visitors, from mere force of association, constitutes the super-excellence of the French school of painters, who, as simple artisans with brush and pigment, may be justly regarded as novices in their profession. They possess a redeeming quality atoning for all their defects and errors in style and execution, for they strike the chord of the nation's heart, and have commemorated the nation's grandeur.

Let the traveler cross the British channel, and in the midst of the great metropolis, the Babel of our generation, he will find a very expensive and meritorious gallery, upon which the good people of England have conferred the distinctive title of National. Beyond the slight particular of creation from the funds of the nation, the London National Gallery can assert no attribute of nationality. Unlike the paintings at Versailles, intrinsically and emphatically characteristic of the people, who not only have purchased, but produced them, the dearly bought prizes of the British gallery provoke no sentiment of pride, no glow of enthusiasm, no outburst of admiration, within the breast of the Briton, save the very natural admiration of a well-wrought specimen of manual craft. He admires the artist and the product of his labors; still he neither sympathizes with the enthusiasm of the master, nor compehends the motives for its generation. He regards but little the subject of the painted poem—for art is but the poetry of a refined soul finding vent in imaginative reproduction of reality—and applauds solely the manner of its composition. He views but a beautiful corpse, whence the soul has fled.

Akin with every other utilitarian science, painting has its instructive mission, ever varying as to the characteristics of the people change from progress of civilization. To be merely decorative, art fails of its object in invention; for it possesses a nobler purpose, which may be justly defined as the conservation of patriotism. As language keeps alive the fire of nationality, so should painting embalm the genius of a country by preserving memory of familiar scenes, or by transmitting to posterity reminiscences of actions, deeds, or manners. A painting, in a utilitarian point of view, is a monument of some event, political or social; and the more intimately the artist conjoins his work with the spirit of the times or the scene he attempts to delineate, the more thoroughly does his work acquire the elements of artistic greatness. There are degrees in this greatness, which are measured by association, and to attain the acme of greatness requires an almost impossible admixture of good qualities, harmonizing in such a manner that no single quality shall predominate. By illustration alone can we define our proposition.

A talented artist, well tutored in the production of effects, we will imagine to have produced a faultless portraiture of a fellow-being, and his work is admired as a marvel of art, and essentially of art alone. If this portrait be of some man well beloved of the people, the artist attains from popular association a secondary quality of admiration, enhancing the value of his production. If to the portrait of the man he adds a scene, intimately connected with the personal history of his hero, he further advances in artistic dignity. If to the scene he conjoins reminiscence of some act or deed, tending to augment the political or social importance of a nation in which his hero was a prominent actor, the painter rapidly ascends the scale of greatness. And finally, if he render the face, attitude, or gestures of the man expressive of his eternal emotions, as well as indicative of the nature of the scene in which he is an actor, and suggestive of the consequences of his action, the artist achieves a triumph in the reunion of a myriad of associations upon a common centre, which may well entitle him to honor for a comparative fulfillment of his professional mission.

In the century wherein we exist, we have but a solitary standard of merit—utilitarianism. We care not to argue upon the reasons for the existence of this standard, but as it exists we must acknowledge its supremacy, which reigns as well over art as over every branch of industry. Still, as the mission of art differs widely from that of commerce or of mechanism, its utilitarianism assumes a more diverse complexion, scarcely perceptible to an ordinary inquirer, yet readily to be detected from analyzation of effect. In its earlier stages of progress, art may have been comparatively decorative, but that day has long since passed away, and to the empire of the brush and pallet has been committed jurisdiction over both political and social morality. With both positive and negative scepters, the painter, true to the impulse of nature and swayed by the advancement of our common weal, commemorates valorous actions, honors wisdom, stigmatizes crime, chastises folly, and strangles immorality. Thus into the hands of art is committed dominion over the passions not only of the individual, but of the masses composing the body politic, and he who fails either to comprehend or to appreciate the magnitude of the trust reposed in him, lacks the primary qualifications for his profession, and must, therefore, content himself with an obscurity, commensurate with the dilution of his own vision.

In no quarter of the world has the utilitarianism of the higher branches of the Fine Arts been more thoroughly despised than in America, and consequently, while we have a larger proportion of artists, so called, than of other learned professions, comparatively as to Great Britain, we have produced fewer works of art, properly to be thus termed. This lamentable effect is not to be attributed to any want of popular appreciation on the part of the community, for our citizens not only bepraise tolerable works of art, but absolutely pay most liberally for very indifferent compositions. This scarcity of artistic paintings is chiefly deducible from the apathy of our native artists, who are content to remain in the lower path of their profession without seeking to elevate the common taste by embellishing their works with the more ennobling qualities of art. True, every few years an emulous painter, more remarkable for boldness of conception than delicacy of execution, rises from among the inert mass of artists; still, even these exceptions fail in persevereance to attain legitimate distinction as masters of their profession. To be frank, while but versed in the grammer of their art, they attempted masterly flourishes at rhetorical compositions, and, disconcerted at their failure, too frequently relapsed into stubborn inertness.

Our artists seem to have committed a grievous error, in overlooking the intrinsic importance of nationality in the selection of subjects, and have thus discarded the very quality which may have cloaked minor imperfections. While our history is inexhaustibly rich in incident and adventure, breathing a spirit of fascinating novelty, excelling the legendary heroism of the middle ages, this wealth has been left untouched; while the works of foreigners, neither distinguished for taste nor delicacy, have become a staple in our art-markets, notwithstanding the monotony of their subjects, in which we, born on the soil, feel neither admiration nor interest.

Artists may be accused with show of reason of over-estimating their own abilities, by placing too firm a reliance upon the mechanism of the brush. They toil to acquire a full and legitimate mastery of coloring, of anatomy, and of perspective. They copy the human face most rationally; nay, they even invest it with charms, derivable from art, unpossessed by the original. They reproduce nature in unexceptional foliage, bedewed by the harmony of well-bestowed tints. And here unfortunately their labor rests, and they fail to infuse into their works that association with the memory of the spectator, which excites a permanent and honest admiration for artistic works. True, the product of skillful labor, of meritorious mechanism is before us; still it is the mere automaton of Prometheus, lacking life and breath to infuse warmth into our individual souls.

The artist forgets, apparently, that he lives in a century not only of thought, but of action. We have passed through dreamland, and commingle amid the Babel of workers. The mind, like the body of the dweller of this age, requires constant excitement. We are no longer enchanted by the mere beautiful, but yearn after the extravagant. We know not whether the unrest of the epoch contributes to the amelioration of mundane matters; still, its progress demands every human being to fall into the current. Useless is it to stem the torrent of public opinion, of popular tendency; and the one man who adheres to the maxims and prejudices of the past, will assuredly find himself isolated from the popular mass. The wisdom of our ancestors may be appreciated by the learned; admiration of their peculiar tastes may be permitted to eccentricity; still, the new generation has created a new world, and those who wish to live up to the requirements of the age, must abide in the way of the new creation. And here, judge we, have our artists erred:—they have worshipped the past, and unconsciously reproduced its images, and therefore failed to enlist the sympathy of a living generation, regarding the people of the past only as connected with our individual selves. It is a serious misfortune to Art, that the practice of its cultivation entails upon the Artist a comparative isolation from the active world, and therefore, to attain reality, he draws upon imagination. A painter, for example, attempts a battle scene, without ever having engaged in combat; and think you that he can reproduce the enthusiasm, excitement, and vehemence of participants in the deadly conflict? No. Still, by investing his picture with a spirit of nationality—by rendering his inaccuracies imperceptible to the common eye, absorbed in the contemplation of the reasons for the fight, or the ultimate result of the conflict—he attains a triumph which could not be accomplished by the most faithful and scrupulous reproduction of the living scenes he has attempted to delineate. Consequently the emotions experienced by the spectator have constituted the charm of the picture; and to be able to evoke these, or similar emotions, the painter should comprehend the tastes and inclinations of the people, as a reflective body. He must be, therefore, not only a student of art, of color, of pictorial effect, but likewise of the living world; for, as the essayist delineates the human passions by the pen, in like manner does the artist lay open the greatness and weakness of our race by magic dashes from his brush. This worldly knowledge, inseparable from popular sympathy, should be systematically acquired at the outset of a professional career, and the augmentation of its domination will naturally lead the artist to a proper selection of subjects, such as may ever tend to increase his personal repute. An author, to describe in vivid language the actions of men, should have studied them inwardly, in order to comprehend the motives for their action; and in similarwise should the artist, attempting a like task, fulfil the same preliminary training. Mere rhetorical beauty of style or brilliancy of language can never create a durable historical essay, and, from similarity of need, the hero of the pallet fails, when attempting to enlist popular sympathy by a too credulous reliance upon the mastery of mechanical art.

If art has its error, criticism has still more grievous ones. The critic too frequently follows the painter, while the painter rarely, if ever follows the critic. We have placed too great stress upon the minute details of art, praising or applauding according to a determined standard of mechanical operations; in fact, we have discouraged the development of ideas, by a blind adherence to the dogmas of professional origin. We have praised the color of Titian, the gracefulness of Rembrandt, and the grandeur of Raffaelle; still, how many of the popular mass have ever contemplated the originals of these great masters? And how can they justly appreciate the *imitations* of productions which they have never beheld? Still, artists of the present day struggle to become Titians, and such mummies of the past, and thus, from force of habit, close their eyes against the beauties of the present. In this wise have we spoiled newborn Hogarths, and contemporaneous Landseers. This hero-worship of art, the *pedantry* of the brush, brings with it its punishment, for, in struggling to become Cæsars, we sink into insignificance.

It will be observed that the landscape painters of America have far excelled their rivals delineating the passions. This is a natural result, for in copying nature, we have attained a nationality by the reproduction of scenes appertaining to our climate, and of beauties familiar to every eye. This very success in landscape painting, this triumph of the real, should operate as an incentive to the worshippers of the ideal, by simply showing them that the subject, in a majority of instances, is more than half the picture. In whatever the artist attempts, his primary consideration should be as to the effects to be produced; for failing to enlist a sympathetic response from the spectator, his labor is wasted, being valueless, save as a neat and pleasing specimen of artistic handicraft. From admiration of locality, the mind of every reflective being passes to appreciation of nationality, and, from the enthusiasm of nationality, is but a step to the grandeur of universality. We had trusted that the establishment of the magnificent gallery, known as the "Dusseldorf," would have wrought a serious change as regards the manner of American artists, by demonstrating that in this collection of modern masters a revolution, as to adherence to the prejudice of ancient picture-worship, had been practically wrought. The great charm of the Dusseldorf gallery is simply its nationality, although, in some instances in the historical compositions, nationality has assumed a superior form of universality. Select the instance of the martyrdom of John Huss. However endeared that man may have been to the people of the artist, perpetuating the scenes of his greatness, there can live no man, who does not partake, in a measure, of a similar veneration. Still, the artist has superadded to this admiration for the subject, the superiority of comprehending the motives and results of the scenes presented by him; the past, present, and future, embodied in a single portraiture of the passions, embellished by the accessories of contending emotions. How brilliantly has the artist defined the theory of the martyr's ultimate triumph! There stands John Huss, a simple man, exponent of human individuality, in his own person defying the thunders of authority, exemplified by pope, emperor, nobles, and burgess. The man dies, but the principle liveth; and from the ashes of the one man, the martyr Huss, have arisen churches without popes, nations without emperors, people without nobles, and towns without burgess. Now, in what consists the triumph of the artist, thus bestowing upon the world a great work of this everlasting character? Not in superiority of color, not in brilliancy of mechanical art: for there are neighboring pictures, rivalling its artistic merits, and failing to elicit an equality of commendation; but, in the magnitude of the selected theme, the arrangement of the details of the scene, and in the suggestion of the unpainted future, which is worked out in the mind of the contemplative spectator. And yet we have among us artists, capable of producing as mighty an effort, who dreamily doze, unmindful of the mission of their noble calling.

The hour has arrived when the necessities of our country not only justify, but inexorably demand, the production of a series of national paintings, and we see no proper reason against the establishment of our Versailles, or of our Luxembourg. Our national wealth could not be better expended, and liberality in the encouragement of art forms an admirable feature in our congressional legislation. If even the patronage of the nation were withdrawn, the ample purses of private persons, the mercantile princes of our Atlantic cities, longing to emulate the Medici of old, would guarantee the merited recompense to successful art. It rests solely with the artists of America to assume their mission, and a grateful people will not suffer them to pass unrecompensed or unhonored.

Unto artists we speak, as men of the people, loving with them, our common country; and we are anxious that they assert the claims of our nation to artistic distinction. We perceive no just reason why, in national works of art, we should be inferior to France, much less to Great Britain. We have the experience of both these countries; we have the precepts of the past, of all countries and all ages; we have a history, novel in incident, and a people heartily patriotic, and with a profound veneration for the deeds of their ancestors. With these advantages in their favor, and stimulated by energy and perseverance, our artists may ultimately accomplish miracles compared to their present art-offerings, when they throw aside the monotonous placidity and deleterious inertness which hangs, as a nightmare, upon the general mass of our American painters. The conquering genius, which has mastered practical industry; which has given to the seas the symmetrical vessel, ploughing the deep, and which has bestowed upon the land agricultural wares of passing plenteousness, should not falter at the pen and pencil. In literature, America has produced most eminent historians; in sculpture, she has turned forth works of a world-repute; and now the sister-muse seeks disconsolately an ardent disciple, and the people mourn a purely national painter, to transmit to our children the grandeur of our fathers.

From the London Art-Journal.

THE KALOTROPE.

A new optical arrangement, invented by Mr. Thomas Rose, of Glasgow, and named by him the Kalotrope, or *beauty-turner*, is one of the novelties recently produced at the Royal Polytechnic Institution. The design of this instrument is to show the ordinary illusions of the thaumatrope to an entire audience, and also to exhibit a succession of pleasing and instructive changes on any *one* disc of devices submitted to the action. The effects are the result of the persistence of vision; but this simple principle is presented under various conditions. The mechanical arrangement of the kalotrope consists of two wheels, to which a considerable range of velocity is given by a series of pulleys in connection with a first motion. The wheels are placed one behind the other, and move in contrary directions; the hinder wheel carrying a disc charged with certain devices, and the one in front, a disc with a number of radial perforations. This double-disc action is not in itself a novelty, various forms of it having been contrived by Duboscq-Saleil, Plateau, and other ingenious men; but we believe that its adaptation, in the present instance, to the production of a series of illusive changes on a single disc of devices, is both new and interesting. To understand the action and its effects, it is necessary to mention one or two simple facts in connection with them. The devices can no otherwise be seen than through the apertures of the front disc, and their appearance to the eye is affected by the angular motion of the apertures, or the space they travel in passing over any figure. Now if the devices were stationary, and the apertures only moved, the latter must travel a space equal to the full width of the figures, in order to pass them; but as both wheels are moving with equal velocities, and in contrary directions, the figure and the aperture meet each other, and the latter clears the figure when it has passed over a space equal to one half its diameter. So long, then, as the velocities of the wheels are equal, the figures are only narrowed to one half of their breadth; but when differently perforated discs are applied in succession, the figures are multiplied in proportion to the apertures; and if there is not room for these repeats of the devices to stand out singly they involve and overlay each other. The inventor's discs are contrived with a view to this effect, and the most remarkable illusions of multiplication, combination, involution, and motion, are produced. We may give one instance as a general illustration of the action. A disc is charged with twelve intensely black balls, arranged in a circle, and nearly touching each other. Under simple persistence a delicately shaded ring is produced; the second wheel is then applied in front, and its spokes allowed to play over the balls, when they become a ring of twenty-four segments; a disc of twelve perforations is placed on the front wheel, and twenty-four oval figures are seen; a disc of twenty-four perforations is next applied, and forty-eight involved figures, beautifully varied in tint, are produced; lastly, a compound-perforated disc is used, when an intricate lace-work device is shown. The perforated discs might easily be extended to a series of twelve, or even a larger number, and of course the two wheels might have various velocities in relation to each other. If advantage were taken of all the varieties of action of which the kalotrope is capable, not fewer than a hundred changes could be brought over one disc of devices. Whilst the effects of this optical arrangement are beautiful as mere spectacles, many of them are of high value as illustrations of scientific principles. The instrument may claim to be admitted into the drawing-room as a philosophical recreation, and into the lecture-room as an exponent of scientific truth.

From the Liverpool Photographic Journal.

THE QUARTERLY REVIEW AND PHOTOGRAPHY.

In the *Quarterly Review* for April last there is an article on "Photography," in which the progress of the art from Davy and Wedgwood to our own time is discussed. Six-and-twenty pages of essay on such a subject, we are glad to say, cannot help containing many ideas and parallels which are well worth noticing, but, at the same time, we confess it is with a feeling near akin to anger that we see ushered into the world, under these high auspices, such a one-sided, unjust, and incorrect collection of statements.

Unfortunately, any society,—unless the managers thereof are chosen for their practical acquaintance with business rather than for their theoretical knowlege of science,—is liable to degenerate into a little coterie of gentlemen, each riding his own particular pet hobby, and innocently wishing to mount his neighbors' behind him. Where was a society yet established on perfect principles? Photographers are assuredly not exempt from that law which proclaims that the too exclusive following of any abstract line of thought gradually elevates and purifies the intellect, so that at last it is rendered unfit to grapple with the uncompromising, selfish realities of this world's business; and so possibly the leading Photographic Society in the world may, at some of its meetings, have had loud assertion mistaken for argument, and at others rather too much importance given to subjects which longer reflection would show to be hardly deserving of so much warmth; but the reviewer assuredly must have quaffed but a very limited number of times at the fountain head to have brought away such an impression of its meetings as is given in the following extracts, in which we recognise all the faults without any of their redeeming points of interest:

"Thus, where not half a generation ago the existence of such a vocation was not dreamt of, tens of thousands are now following a new business, practising a new pleasure, speaking a new language, and bound together by a new sympathy.

"For it is one of the pleasant characteristics of this pursuit that it unites men of the most diverse lives, habits, and stations, so that whoever enters its ranks finds himself in a kind of republic, where it needs, apparently, but to be a photographer to be a brother. The world was believed to have grown sober and matter-of-fact, but the light of photography has revealed an unsuspected source of enthusiasm. An instinct of our nature, scarcely so worthily employed before, seems to have been kindled, which finds some of the gambler's excitement in the frequent disappointments and possible prizes of the photographer's luck. * * * * * The very talk of these photographic members (of the Photographic Society) is unlike that of any other men, either of business or pleasure. Their style is made up of the driest facts, the longest words, and the most high-flown rhapsodies. Slight improvements in processes and slight varieties in conclusions are discussed as if they involved the welfare of mankind. They seek each other's sympathy, and they resent each other's interference with an ardor of expression at variance with all the sobrieties of business and the habits of reserve; and old-fashioned English *mauvaise honte* is extinguished in the excitement, not so much of a new occupation as of a new state."

The conclusion of the paragraph from which we have extracted the above, contains an incorrect statement, in which the unfortunate King of Naples is, in this instance, painted blacker than he deserves—who "alone, of the whole civilized world, has forbidden the practice of the works of light in his dominions." It is almost needless for us to assure our readers that this is not the case, although the writer can refer to a former number of the Journal of the Photographic Society as his authority.

"Our chief object (he continues) at present is to investigate the connection of photography with art—to decide how far the sun may be considered an artist, and to what branch of imitation his powers are best adapted."

Here then is the key to the whole mystery. The writer is evidently an artist, possessing a very shallow acquaintance with the principles of the science, as the following delicious bit of pseudo-chemistry will show:—

"It may not be superfluous to all our readers to state that the whole art, in all its varieties, rests upon the fact of the blackening effects of light upon certain substances, and chiefly upon silver, *on which it acts with a strong decomposing power.* The silver being dissolved in a strong acid, surfaces steeped in the solution became *encrusted with minute particles of the metal*, which, in this state, darkened with increased rapidity."

Passing over an historical summary of the progress of the art, we come to the first introduction to the world of Daguerre's discovery, and we quote the following graphic account of a remarkable scene in the French Chambers, with the more pleasure, since it shows that had the writer confined himself to facts instead of opinions, the essay could not have failed to interest its readers:—

"The question before the deputies was this:—MM. Daguerre and Niepce, jun., (for the partnership gave all the advantages of Daguerre's discovery to the son of his late colleague), were possessed of a secret of the utmost utility, interest, and novelty to the civilized world—a secret for which immense sacrifices of time, labor, and money had been made; but which, if restricted by patent for their protection, would be comparatively lost to society. A commission had therefore been appointed by the French Government to inquire into its merits, and the secret itself entrusted to M. Arago, who succeeecd at once in executing a beautiful specimen of the art. Thus practically convinced, he addressed the chamber in a speech which is a masterpiece of scientific summary and philosophic conclusion. He pointed out the immense advantages which might have been derived, for example, during the expedition to Egypt, by a means of reproduction so exact and so rapid. He observed, that to copy the millions and millions of hieroglyphics which entirely cover the great monuments of Thebes, Memphis, Carnac, &c., would require scores of years and legions of artists; whereas, with the daguerreotype, a single man would suffice to bring this vast labor to a happy conclusion. He quoted the celebrated painter, De La Roche, in testimony of the advantage to art by designs as perfect as possible, and yet broad and energetic—where a finish of inconceivable minuteness in no respects disturbs the repose of the masses, nor impairs in any manner the general effect. The scene was French in the highest sense—at once scientific, patriotic, and withal dramatic,—France herself, treating for the creations of genius on the one hand, and on the other dispensing them as gifts to the whole world. It was repeated in the Chamber of Peers, who, in addition to other arguments addressed them by M Gay-Lussac, were reminded with a true French touch, that even a field of battle in all its phases may be thus delineated with a precision unattainable by any other means! The result was, that a pension of 10,000 francs was awarded for the discovery—6000 to M. Daguerre, 4000 to Mr. Niepce. The seals which retained the secret were broken, and the daguerreotype became the property of the world."

We next come to a most unjust mis-statement, by which it would be imagined that MM. Fizeau and Claudet were the only perfectors of the Daguerreotype since the date of its discovery. We are quite sure that both these gentlemen have their reputations too firmly based to require such a wholesale appropriation of the labors of the other numerous and earnest truth-seekers in the art; and this latter philosopher may on good grounds complain of the officiousness of a friend who gives the following incomprehensible jargon, as one of the two steps towards perfection which are worthy of especial mention:—

"———at the same time, by a prolongation of a part of the process, he has, without the aid of mercury, at once converted the image into a positive, the silver ground now giving the lights, instead, as before, of the picture."

Since the picture, as usually obtained, *is* a positive, we are at a loss to know how it can be *converted* into a positive by changing the shades into lights.

Glancing over the next few pages we find no reason to modify our assertion of incorrectness in the statements. For instance, in mentioning the two almost simultaneous discoveries of Talbot and Daguerre—by the confused manner in which the exact date of publication in the case of the former gentleman, and the first vague announcement of the discovery of the latter, are jumbled together, the reader is led to imagine that they were perfectly coincident in date; whereas, in the case of Daguerre, the full publication of the secret (which alone must be compared with Talbot's paper to the Royal Society), did not take place till six months later. Again, it is stated that an "immediate impulse was given" to the discovery. "by the Rev. J. B. Read recommending the use of gallic acid." We will not deny that this experimentalist made use of tincture of galls in some of his preparations; but, as he was induced to try this by knowing that white leather was a more sensitive medium than paper, it is evident that it was the *tannic* acid which he supposed was the active agent, and not the *gallic* acid; which, besides being a totally different body, is only present in the tincture in very small quantities.

Too little credit is next given to Talbot, on account of his directions being "too vague for the tyro." This assertion has been so often made, that the public are beginning, we fear, to imagine that it is the case; but a more unfounded prejudice never existed. Let the simple directions given in Talbot's specification, and the most recent and voluminous account of the beautiful collodion process, be placed in the hands of any one, totally ignorant of photography, but of ordinary intelligence and habits of cleanliness, and we have no hesitation in affirming that he would become a perfect master of the former process before, in the latter, he had quite made up his mind which way to prepare the gun-cotton, or whether his bath should be acid or neutral. The only difference that we can see between the original description and that of Mr. Cundell is, that the former presupposes the reader to be possessed of common sense, whilst the latter gentleman addresses himself to those who are unhappily deficient in that article.

We have stated that the writer evidently possesses a most superficial knowledge of the art which is here discussed. We think that sufficient has been quoted to substantiate such an assertion; but, should any latent doubts of our grounds for the charge still exist, the following sentence will at once dispel them. The reviewer is indulging in a lofty strain of high-flown verbiage about the sensitiveness of the collodion film (at which the sun is elegantly said merely to "wink his eye"), and then we are told—

"Further than this, the powers of photography can never go; they are already more nimble than we need(!) Light is made to portray with a celerity only second to that with which it travels(!!); it has been difficult to contrive the machinery of the camera to keep pace with it (!!!), and collodion has to be weakened in order to clog its wheels (!!!!)."

We are weary of wading through such nonsense—let us turn to the part which, doubtless, will repay us for reading. Surely an artist can write sense on his own subject, if he is out of his depth in science. It is ushered in by a flowery description of some of the defects of photography. When speaking of the inability of the sensitive surface to represent the effect of color, we read—

"So impatient have been the blues and violets to perform their task upon the recipient plate, that the very substance of the color has been lost and dissolved in the solar presence"

And again—

"Even if the world we inhabit were constituted but of two colors—black and white, and all their intermediate grades * * * * photography could still not copy them correctly. Nature, we must remember, is not made up of actual lights and shadows; besides these more elementary masses, she possesses innumerable reflected lights and half tones, which play around every object, rounding the hardest edges, and illuminating the blackest breadths, and making that sunshine in a shady place, which it is the delight of the practised painter to render. But of all these photography gives comparatively no account. The beau ideal of a Turner and the delight of a Rubens are *caviar* to her. Her strong shadows swallow up all timid lights within them, as her blazing lights obliterate all intrusive half-tones across them; and thus strong contrasts are produced, which, so far from being true to nature, it seems one of nature's most beautiful provisions to prevent. * * * * Every thing on which the light *shines* as well as every thing that is perfectly white, will photograph much faster than other objects, and thus disarrange the order of relation When light meets light, the same instantaneous command seems to go forth as that by which it was first created, so that by the time the rest of the picture has fallen into position, what are called the high lights have so rioted in action as to be found far too prominent both in size and intensity,"

We suspect that the weakening operation which the author was obliged to perform on his too sensitive collodion (see above), has been done with very impure samples of alcohol and ether, otherwise we cannot account for this statement. We trust that very few of our readers have such an infantine acquaintance with the subject as to be unable to obtain natural half-tints in their pictures, for, as far as we can unravel the author's meaning, that seems to be the disputed point.

We now approach a part of the subject respecting which we are less qualified to form an opinion. We confess to total ignorance of those conventional terms under which second-rate artists are wont to hide what appears to us a violation of nature's rules; but surely we are not in error when we fancy we detect a vein of quiet irony running through the following most amusing passage:—

"—— we sympathise cordially with Sir William Newton, who at one time created no little scandal in the Photographic Society by propounding the heresy that pictures taken slightly out of focus, that is with slightly uncertain and undefined forms, though less *chemically*, would be found more *artistically* beautiful Much as photography is supposed to inspire its votaries with æsthetic instincts, this excellent artist could hardly have chosen an audience less fitted to endure such a proposition. As soon could an accountant admit the morality of a false balance, or a sempstress the neatness of a puckered seam, as your merely scientific photographer be made to comprehend the possible beauty of 'a slight *burr*.' His mind proud science never taught to doubt the closest connection between cause and effect, and the suggestion that the worse photography could be, the better art was not only strange to him, but discordant. * * * * * * * * * Sir William Newton, therefore, was fain to allay the storm by qualifying his meaning to the level of photographic toleration, knowing that, of all the delusions which possess the human breast, few are so intractable as those about art."

Surely the writer cannot mean that the high finish of the photograph is incompatible with that breadth of light and shadow which so pleases us in a good painting. To us it seems to be one of the glories of our art that it is doubly true to nature, not sacrificing the minute detail, and at the same time giving us all those grand Rembrandt masses of light and shade, which can only be seen in perfection amongst those scenes where it is the delight of the artistic photographer to wander.

If we make allowance for the soreness and jealousy with which the reviewer speaks of the connection of photography with art—(which perhaps is excusable, if we rightly understand the concluding paragraph in the essay, where it is lamented that "the higher professors of miniature painting have found their studios less thronged of late," and, "those who in future desire their exquisite productions will be more worthy of them")—with this allowance, the latter part of the review is not badly written; most of the photographs by inferior artists partake more or less of the defects which are here scattered with so unsparing a hand upon all; and, in fact, the following graphic description of the results of photographic portraiture will apply to, alas! to many of our cheap dabblers in the art.

"—— of all the surfaces a few inches square the sun looks upon, none offers more difficulty, artistically speaking, to the photographer than a smooth, blooming, clean washed and carefully combed human head. The high lights which gleam on this delicate epidermis so spread and magnify themselves, that all sharpness and nicety of modelling is obliterated—the fineness of skin peculiar to the under lip reflects so much light that, in spite of its deep color, it presents a light projection instead of a dark one—the spectrum or intense point of light on the eye is magnified to a thing like a cataract. If the cheek be very brilliant in color, it is often as not represented by a dark stain. If the eye be blue, it turns out as colorless as water; if the hair be golden or red, it looks as if it had been dyed; if very glossy, it is cut up into lines of light as big as ropes. This is what a fair young girl has to expect from the tender mercies of photography."

But the unerring truth of photography has made some impression upon the reviewer. Towards the conclusion he relents somewhat, and makes many admissions, which we certainly did not anticipate when the hopeless inability of photography to copy anything correctly was so lucidly proved, or rather so positively asserted, in a former part. We now read that photography

"is made for the present age, in which the desire for *art* resides in a small minority, but the craving * * * for *correct facts* in the public at large."

Lest our readers should hesitate in accepting the admission conveyed in the above antithesis, we give them the following extracts:—

"Minute light and shade, cognisant to the eye, but unattainable by hand, is its greatest and easiest triumph."

"What are her unerring records, but facts of the most sterling and stubborn kind."

"What are her studies of the various stages of insanity—pictures of life unsurpassable in pathetic truth—but facts as well as lessons of the deepest physiological interest."

Ample justice is *here* done to the wonderful resources which science has placed at the disposal of every one, be he artist or not. But from the general tone of the article we are justified in complaining that imperfections, only present when the powers of photography are wielded by unskilful hands, are considered as radical faults in the machinery, and the art judged by very imperfect and false specimens of its true powers. It is most presumptuous and unjust for any one, however perfect his artistic knowledge, to attempt to institute comparisons between his own peculiar study and any other art, the superficial knowledge of which has evidently been got up for the occasion. We are truly pained to see an article like that which we have been discussing, in the pages of one of our literary organs of such sterling reputation for accurate and discriminating judgment—one which for upwards of half a century has been adorned with contributions from men whom we justly honor as mighty chieftains of that great intellectual army, whose onward progress the fiercest thunder of the cannon is powerless to stay.

From the Liverpool Photographic Journal.

ORIGIN OF THE COLLODION PROCESS.

BY FREDERICK SCOTT ARCHER.

"The process with collodion was originally given by me in the March number of the *Chemist*, 1851; and I had in a previous communication to the same journal made known the great power of pyrogallic acid as a developing agent.

"Since their introduction, photography has made most rapid strides towards perfection, various improvements have been suggested in its manipulation, all tending towards the ultimate perfection of the process.

"It will be as well to say a few words in reference to the various experiments which led me to adopt collodion as a medium, so well adapted for receiving the chemical agents necessary in this beautiful art.

"In my first account of the collodion process, I alluded to the difficulties attending the use of paper, and described them as being too great ever to be overcome, on account of the unevenness of its texture and other defects.

"My first attempts with collodion were directed to the improvement of the surface of paper, by spreading over one side a thick solution of collodion.

"These essays were not successful, for, after the necessary washing, &c., in the process, the collodion film did not adhere to the paper sufficiently to be of any use.

"However, previous to and during the progress of these experiments, I was trying various other substances as media for holding the chemical agents—zylodin, other modifications of starch, extremely fine paper pulp, tanno gelatine solutions, and several combinations of albumen. Each had its turn, and it was only after innumerable experiments in various ways that I decided on collodion as being the best, and, at the same time, the most available substitute for paper. Its exceeding ease of manipulation, and the brilliancy of the pictures obtained with it, cannot fail to strike every one who sees them, and justifies me in the opinion I entertain of its value and practical importance.

"With regard to the introduction of collodion as the foundation of the process, I must say a few words.

"Collodion, there is no doubt, early attracted the attention of photographers, but who first actually suggested its use, we have no means of determining with any precision; since however its value as a photographic agent has been known and appreciated, many claimants have come forward anxious to obtain a share in the merit of its first introduction.

"There can be little doubt that many of those engaged in the pursuit of photography, anxious to improve the then known processes or invent others, would very soon have collodion brought under their notice, proceed to test its capabilities as a photographic agent, and possibly endeavor to work out a process by which it could be made available in the art.

"It is indeed obvious, from a consideration of its remarkable qualities, that it could not long escape their observation, and we may easily imagine also that it would be likely to attract simultaneously the attention of many parties who were laboring in the same field of research.

"It is evident that, in deciding a question of this kind, the *first published account* must take precedence of any other kind of proof, and it is due to M. Gustavus le Gray, a gentleman whose great services in other branches of the art of photography are well known, and are held in high regard, to say that he was the first to publish an account of collodion as a photographic agent. I allude to his pamphlet published in 1850, wherein he mentions collodion and its *possible* use. His first application of it appears to have been as an encollage for paper. Afterwards he used it on glass, and gave in his memoir a short account of his researches, but no manipulation in detail was made known, such as would entitle it to be called a photographic process; and from the wording of his published notice, it would appear to have been merely an extract from his note book of chemical experiments; as such it attracted little attention at the time; still M. le Gray must be considered the first party who, by publication, made known his researches on the subject, and although this notice did not lead to its practical use, it establishes his claim to be considered the first to suggest its value in photography.

"About the month of June 1849, I began to turn my attention to collodion as a substitute for paper, with the hope that by its means a surer and more delicate medium might be produced to work upon than paper was ever likely to be.

"I tried numberless experiments with it, and varied the mode of using collodion, with the hope of getting at a practicable and sure method of working it.

"These experiments were carried on until the month of March, 1851, when I published in the *Chemist* a short account of my experience in the matter; giving a process in detail,—the mode of preparing collodion with iodide of potassium and silver—the proper strength of the nitrate of silver bath—the best proportion of pyrogallic acid for developing the latent picture, with the manner of fixing the picture produced; in fact, giving the whole of the process in detail.

"It will therefore be evident, that although M. le Gray has the merit of having been the first to make known this valuable photographic agent, still as he did not, at the time of his publication, produce it as a process with the necessary details to make it intelligible to the photographer, his claim must in consequence be limited, and cannot in justice interfere with the merit of another party, who from his own experience, made known a process with collodion, and that *without any assistance* from, or reference to, the labors of others in the same field of research."

From the Jour. of the Phot. Soc.

METAGELATINE PRESERVATIVE PROCESS.

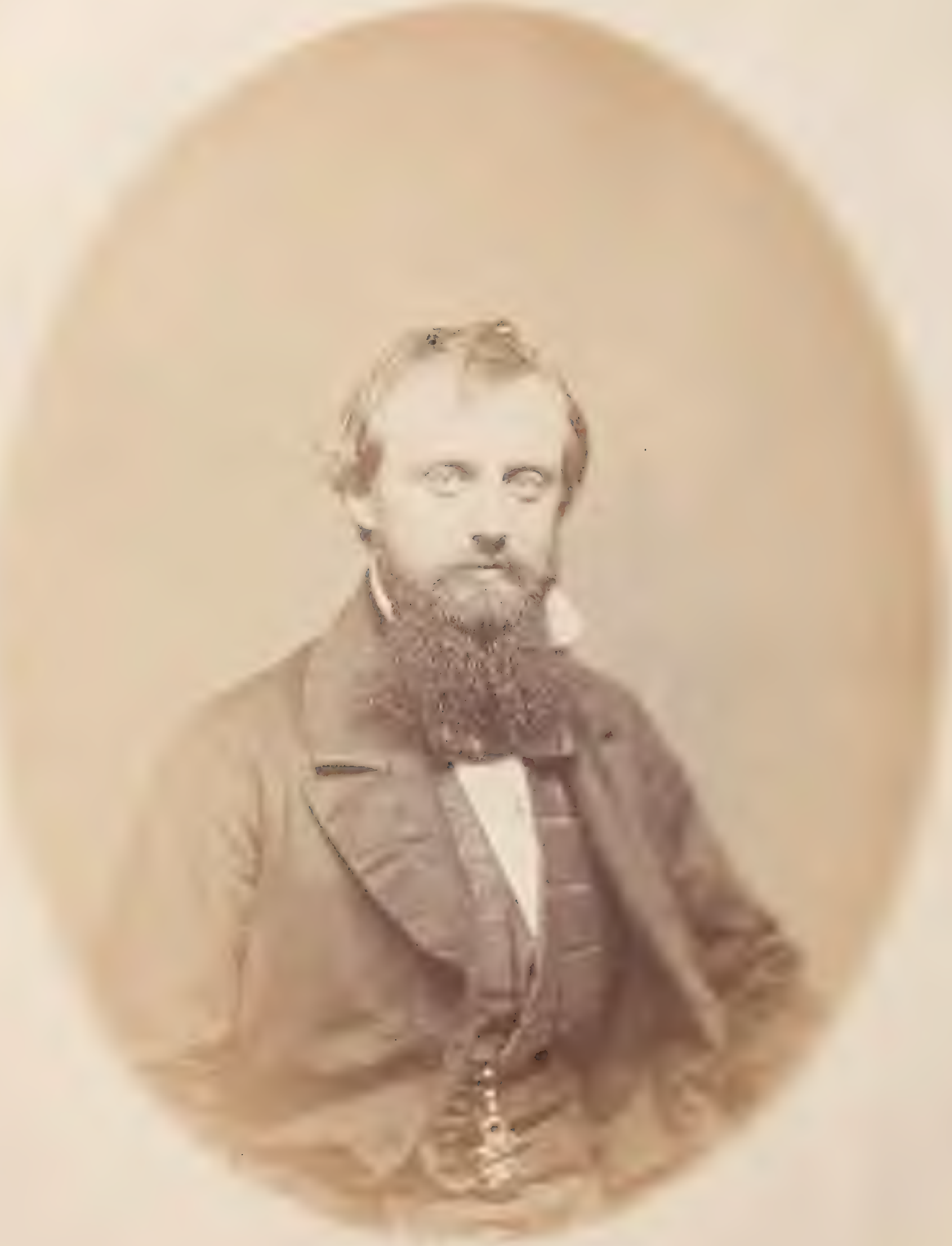
To the Editor of the Photographic Journal.

SIR,—I think the following will on the whole be found an improved method of preparing the metagelatine solution for my preservative process. Take $1\frac{1}{2}$ ozs. of fine white gelatine, and dissolve it in 10 fluid ozs. of boiling distilled water; then add 2 fluid drachms of strong sulphuric acid which has been previously diluted with $2\frac{1}{2}$ fluid ozs. and boil these together gently for a quarter of an hour. Take the vessel off the fire and let it stand for 24 hours, then boil gently again for another 15 minutes, and again remove it from the fire and let it cool for an hour or two. Heat up the liquid once more to boiling, and saturate the acid by adding powdered whiting till effervescence ceases. Separate the sulphate of lime which is thus formed, by pressure in a linen cloth, and then stir into the liquid about a teaspoonful of animal black, and filter once more through paper till perfectly clear; add water to bring up the liquid to the bulk of 18 fluid ozs., and then add 2 drops of creosote. (This last prevents the liquid from becoming mouldy by keeping).

To prepare the preservative syrup, take

Solution of metagelatine................	5 ozs.
Distilled water......................	5 "
Fine honey.........................	$\frac{1}{2}$ "

If the plate is to be kept long and in warm weather, it will be better to wash it once or twice with a little distilled water,



JOHN R. JOHNSON, ESQ.

Negatives by Mr. Hugh O'Neal,—H. H. Snelling, Print.

poured gently over it while on a levelling stand, or better still, to immerse it in a bath of distilled water to which has been added a grain or so of nitrate of silver to the ounce; but in cool weather, or where very long keeping is not requisite, this will be found to be superfluous. In any case, if the plates are to be used in the course of the next day, washing is always quite unnecessary, enough of the nitrate being carried off by the syrup which is first poured over the plate to ensure perfect keeping for at least 48 hours.

Your obedient Servant,
F. Maxwell Lyte.

OUR ILLUSTRATIONS.

[COMMUNICATED.]

I.—JOHN R. JOHNSTON, ESQ.

Negative by Mr. Hugh O'Neal.

"John R. Johnston is the subject of our present sketch and portrait; a gentleman whose reputation as an artist, has of late brought him into a prominent position among our citizens. In the present stage of his deserved popularity, a slight memoir of our talented friend, may be appropos to many of our citizens, who though acquainted with him, are not familiar with the incidents of his life. For his career is a great example of what indomitable perseverence and energy, with genius, can accomplish. Mr. Johnston is a Buckeye, having been born in Cincinnati, on the 10th of March, 1826; the youngest but one of five children. His father Mr. Joseph Johnston, from Tyrone Country, Ireland, was among the first settlers in the Queen City; and unfortunately was among the numbers who fell victims to the ravages of the cholera in 1832; leaving a wife with five children, of which John, our artist, was one He was sent to a school in the country in 1834; after remaining there some two years, returned to the city to pursue the bent of his own inclinations.

"His progress with Alma Mater was rather slow; for sketching his companions faces was more congenial to his talents, than the conjugation of verbs, or declination of nouns. In fact like Hogarth, he had an

'itching palm'

for the ludicrous points of human nature; and was never easy until his pliant fingers had portrayed the glaring infirmity. When the recited lesson was called for, John was busy sketching the profile of the schoolmaster; which though it pleased the boys, setting them in a roar of laughter, rather disagreed with the teacher's notion of school discipline, consequently when our artist left school, he received very little encouragement either for his learning or drawing. It was at school that he first showed signs of that ready portraiture, which distinguished him in after life; anything humorous of ludicrous, immediately caught his attention, and found in him a faithful delineator. The exuberance of his imagination always provided him with plenty of subjects; and his facile talent soon seized them.

"These cintillations of his genius, attracted no other attentions than those of his mother; who as is usual in such cases, thought he ought to be indulged a little, as he gave such promising signs of being a painter.

"In the political campaigns between Harrison and Van Buren, he proved himself efficient in an accomplishment, which though more convivial, is not included in the bill of fine arts. As a singer he was much noticed, and gained both laurels and friends by his vocal powers. Many here remember him as the leader of their glee clubs and political serenades. At the same time his talent in sketching proved valuble to both parties; as he drew a number of caricature banners and transparencies for the political combatants. In the winter of 1846, he made a visit to the residence of the late Col. R. M. Johnson and painted a very excellent portrait of him, which was acknowledged by many to be the best likeness ever taken of the old hero.

"As we have before hinted, the pliancy of his genius, often led him in pursuits not quite indicative of great success. For in 1847 he commenced modelling in clay, and succeeded in moulding some seven or eight busts; but not receiving the encouragement his sanguinity promised, he came to the conclusion that, whatever was the amount of glory, there was very little *pay* in the arduous profession of a sculptor. In the winter of the same year he took a room in the Appollo building to pursue his study of the fine arts; this was the first place occupied by our artist, as a painter. In 1848, with his usual readiness to do

'the state some service'

he quitted bachelordom for the connubial felicities of a married life.

"In the summer of the same year, he had a call from St. Louis, to paint on a panorama, owned by Mr. Stockwell; he returned in December to paint on the mammoth panorama, known as Lewis's. This large painting was executed by the combined efforts of John Leslie, Jas. Rodgers, Edwin F. Durang and John R. Johnston; from sketches, drawn by Mr. Chas. Rodgers and Capt. Eastman. The landscape part was by our veteran friend John Leslie; the figures, boats and cities were by Johnston. Soon afterwards Durang and Johnson were engaged in painting scenes from the Bible; perhaps the best panorama ever exhibited in the United States. It illustrated passages, from the creation of the world down to the ascension of Jesus Christ. The description of the scenes were delivered by Mr. J——, the artist, who went by the name of parson a long while afterwards. In 1850 Mr. Johnston was the artist at the National Theatre, where he was employed upon palaces and kitchens, in the exuberance of water colors; his chef d'œuvre there, is the drop scene, which has been universally admired.

"In '51 he painted the only portrait of Father Mathew that has been taken in the United States; it is now in the possession of James McCormick, Esq. The likeness is a very striking one. The same year he was elected a Councilman from the 4th Ward; being the first artist that ever filled a municipal office in Ohio. Politics and the Fine Arts do not agree very well together; although Mr. Johnston has managed to hold the reins of both; in fact coupling them with another duty, that of acting as chairman of the jail committee; as a city father he is not very renowned either for forensic of Demosthenic eloquence, still he has acquitted himself very credibly by his prompt energy in assisting the passage of bills conducive to the welfare of his fellow citizens. In landscape painting, our artist, though not of very great experience, is still good; but in portrait painting there are few, if any better.

"His portraits of Madame Celeste, Cassius M. Clay and the illustrious Kossuth, were all perfect likenesses; more especially the last, which was admired by the Magyar and his suite, who acknowledged it to be the best they had ever seen. And they gave Mr. J. a testimonial to that effect. As a portrait painter he is rapid and lifelike, and, if not in possession of the minor excellencies of paintings, such as the exact impersonation of minute objects, and a general neatness of expression and tout ensemble, still he more than compensates by the vividness and truth of his picture. The living *character* that is so visible in his portraits, will excuse the roughness, if there is any, of the coloring. There is another trait in Mr. Johnston's character which I may as well mention here; it is his love for the humorous. Many of his friends, amused by his jokes and witticisms, have laughingly cried,

'Thou art a merry fellow ;
I like thy humor exceedingly.'

"In fact his reputation is considerable, for his propensity for jokes, and his high appreciation of the mirthful. Among the stray jokes floating around with his endorsement, we will select one or two for a sample. Presuming by way of preface, that being a bad hand at relating stories, the reader must not be surprised if the pith of it is lost through the telling:

"On a cold day in December, a tall six footer came blundering into the studio of our artist, and began a leisurely survey of the room and its contents.

"'Wall,' said he, after satisfying his curiosity, 'you'er hard at it, boss, laying on the faces.'

"'Yes,' said Johnston.

"'Wall, I jist drapt in to see if you could give a fellar a job.'

"'Do you paint?'

"'I guess I do,—I'm a pretty considerable big painter, you'd better believe.'

"'What do you paint?'

"'Oh all kinds of fixins, I'm a natral painter, I paint wagons and signs, and last of all I painted the front of our shanty. But there is one difficulty with me, that kinder checks my progress; and that is the mixin' of paints. That's the hardest to larn, and I don't understand it.'

"'Oh yes, exactly, that is the greatest half. But are you not aware that artists' paints are much harder to work, than any other kind? Now, I can soon tell you whether you will ever be a great man in the profession.'

"A mullers stone was put on a table, with a piece of *gamboge;* while the artist proceeded to tell the visitor, that if he could grind that to the right *focus,* he would soon be a Michael Angelo in the art. The aspiring genius threw off his coat, and pouncing on the stone in a position that Ajax might have envied, prepared to grind to an atomless pulp, the little pesky thing. For three or four hours

'He tugged and pulled,
And pulled and tugged.'

Neither elbow grease or labor was spared, his reputation as an artist depended upon its accomplishment. But alas, for the immutability of human affairs; the desired focus would not appear. It was getting dark, and still he labored ineffectually; when putting on his coat, with a wistful stare at the artist, he said he would go, and get some 'tobacker.' He went, and was never heard of since. Another, before we quit the subject; which will serve to illustrate the difficulty, that all portrait painters have to encounter; and for which there is no possible remedy.

"Our artist was engaged upon the portrait of a lady, who by the way was not very highly endowed with beauty. The picture progressed, and the husband came to see how his wife looked upon canvas. Expecting to see his wife look better in paint than she did *en natural,* guess his mortification, at finding a too faithful likeness of his better, but still uglier half. Worse and worse cried the husband as he watched the exertions of the painter, until one morning upon making his daily visit, he found a pair of whiskers, spectacles and long ears added to the portrait.

"'What's it mean?' said the visitor, aghast at the liberties taken with his wife.

"'Oh,' said the imperturable artist, 'that's the banner for the *Earthquakes,* who turn out this evening. I flatter myself it's a good one—quite original.'

"'Well but what in the name of common-sense, did you disfigure my wife's portrait for?'

"'Why, is that your wife; I thought you said it looked more like the devil than your wife?'

"'Oh its her," said the victim, grimly staring at the phenomena of art. 'If you had'nt spoiled it, I would have taken it.'

"Oh, you need'nt trouble yourself, I have been offered twenty dollars for it, by the Earthquakes.'

"To take the portrait with those horrid embellishments, was an outrage not to be tolerated; while the alternative was as bad if not worse, for it was a notoriety he had no ambition for.

"'If you will take off those things, I will give you double the price for it.'

"'Done,' said Johnston; and with a little water he cleaned off 'the foul spot,' for it was water colored, and handed it to the husband. Since then the man has had so many compliments passed upon the picture, that the artist lately received a ring as a present from the now satisfied parties.

"Mr. J. is but twenty-six years of age; full of energy and ambition. There is no young man, probably in our city, whose prospects are so encouraging as the subject of this short sketch. A few years back, and he was at the foot of parnassus, exclaiming, with the poet, as he cast his eyes at the dizzy top,

'Oh how hard it is to climb,' &c.;

but now half way up, his impulsive talent, with the impetus already acquired, will soon place him on the pinnacle.

"We can but cry, with a host more of his friends,

'Prosperity be thy page,
Bold gentleman.'

"In 1852, Mr. J. painted 75 portraits for the Cincinnati Daily Enquirer office to adorn the Editor's Sanctum, of old tried Democrats of the State of Ohio; amongst the collection is Mr. J.'s last picture of General Jackson, Gen. Wool, Hon. Thos. D. Benton, and others of distinction.

"In June 1855, Mr. J. was sent by the Democracy of Cincinnati, to paint Hon. Jas. Buchanan, the President, at Wheatland. This picture is one of Mr. J.'s happiest efforts, and is considered a master-piece. Mr. Johnston is now sojourning in Baltimore painting. His painting of photographs is very fine, and done with unusual rapidity. He is known best among his many friends as Col. Johnston, from the circumstance of his having painted a full length portrait of Col. R. M. Johnston just before his death; and all the old Col. could leave our artist friend, was his title.

"Mr. Johnston has his studio on Baltimore street near Calvert, and it is really worth a visit to see this artist painting, and singing, and entertaining his many friends. His coloring of life-size photographs partakes of a brilliancy and great depth of color, while there is great force of character in them."

IGNIS.

II.—EGERIA.

FROM THE STATUE BY J. H. FOLEY, A.R.A.

Negative by L. E. WALKER.

Many of our readers will remember that about two years since the Corporation of London gave commissions to six of our principal sculptors to execute each a statue to fill certain niches in the Egyptian Hall of the Mansion-House; the subjects to be selected from British poets: at a later date six other statues were ordered for a similar destination. In both cases Mr. Foley was one of those to whom commissions were given; his first work, "Egeria," is here given: it was exhibited at the Royal Academy last year, and is now erected in the Egyptian Hall.

Egeria, as some Roman writers tell us, was a nymph of Aricia, in Italy, and according to Ovid, married Numa Pompilius, the second king of Rome: after the death of her husband she became so disconsolate that she melted into tears, and was changed into a fountain by Diana. Others say she was the favorite nymph and invisible protectress of Numa, and that she generally resided in a celebrated grove, situated near the Appian Way. The fable, whatever the ancients may have said concerning it, has given a name to a fountain, in the valley between the old Appian Way and the modern road to Naples, which Byron has made the subject of some exquisitely beautiful verses in the last Canto of "Childe Harold;" Mr. Foley has taken them as the text of his work.

"Egeria! sweet creation of some heart
Which found no mortal resting-place so fair
As thine ideal breast; whate'er thou art
Or wert,—a young Aurora of the air,
The nympholepsy of some fond despair;
Or, it might be, a beauty of the earth,
Who found a more than common votary there
Too much adoring; whatsoe'er thy birth
Thou wert a beautiful thought, and softly bodied forth.

"The mosses of thy fountain still are sprinkled
With thine Elysian water-drops; the face
Of thy cave-guarded spring, with years unwrinkled,
Reflects the meek-eyed genius of the place,
Whose green, wild margin now no more erase
Art's works; nor must the delicate waters sleep,
Poisoned in marble, bubbling from the base
Of the cleft statue, with a gentle leap
The rill runs o'er, and round fern, flowers, and ivy creep.

* * * *

"Here didst thou dwell, in this enchanted cover,
Egeria! thy all-heavenly bosom beating
For the far footsteps of thy mortal lover:
The purple Midnight veil'd that mystic meeting
With her most starry canopy."

In a subsequent stanza the poet appeals with infinite truth and felicity of expression to the power which the sculptor possesses to create the beautiful, and place it before us as a type of what the world ought to, but does not, show. Byron was, or professed to be, when he wrote his "Childe Harold," a sceptic in the matter of love; he apostrophises her thus:—

"Oh Love, no habitant of earth thou art—
An unseen seraph, we believe in thee,
A faith whose martyrs are the broken heart;
But never yet hath seen, nor e'er shall see,
The naked eye the form as it should be;"

and then, as if he were in the act of contemplating Foley's graceful conception, he adds:—

"Of its own beauty is the mind diseased,
And fevers into false creation;—where,
Where are the charms the sculptor's soul hath seized?
In him alone. Can Nature show so fair?
Where are the charms and virtues which we dare
Conceive in boyhood, and pursue as men—
The unreached paradise of our despair,
Which e'er informs the pencil and the pen,
And overpowers the page where it would bloom again!"

We have always regarded Mr. Foley as one of the most poetical of our living sculptors, yet his conceptions never carry us beyond the limits of humanity. We do not agree with Byron that Nature could not show us a creature as fair in person, as perfect in form, and as pure in mind, as this Egeria is represented, though such a being is a comparative rare example of the daughters of Eve. The sculptor has chosen an appropriate and charming subject for his art, and has treated it with the utmost delicacy of feeling and gracefulness of expression. The Corporation of London may well pride itself in possessing this very beautiful statue.

The formulas for printing and toning these pictures, are the same as for the last two numbers.

From the Liverpool Photographic Journal.

EXHIBITION OF ART TREASURES AT MANCHESTER.

The continued want of catalogues, and the apparent absence of systematic arrangement, constrain us rather to generalize in our remarks upon the Photographic portion of this exhibition, and to endeavor to examine the different classes of photography as represented there, instead of proceeding in regular order through the collection. At the outset we are surprised by a striking omission, viz.:—the non-representation of direct photography, meaning thereby positive and negative pictures on glass or paper as produced *in* the camera; all that we see here are the result of a subsequent process, and no means are afforded to the photographic student, of tracing the progressive steps by which the results before him have been attained. In nearly every case it is left to the visitors experience to determine whether a picture is from collodion or albumen negative, or both, or from waxed paper, or by any of the numerous preservative formulæ, and the original negatives themselves are nowhere visible. Photographic art may be divided into almost as many classes as the art of painting itself. We propose to notice some of its divisions. The department to which professional photographers mostly devote themselves in portraiture, and this class, judging from the large number of touched portraits here exhibited, would seem to be greatly dependent on the painter's adventitious aid. In some cases no trace of the original picture is visible, its only use apparently being to secure identify and truth, the visible picture being laid over the other in oil or water color. Messrs. Caldesi & Co's portraits of Md'lle Piccolomini, Sir B. Hall, Signor Mario, and others, are among the best specimens of this class; but, for the reasons we have alluded to, we consider them rather out of the pale of our criticism. We wish to see photography untrammelled by the easel, and however beautiful the results may be, we think that colored or stippled photographs should be exibited as such, and not allowed to shame their more modest fellows by their glaring propinquity. There are, however, some very pleasing untouched portraits, the names of the artists of which are not known to us. To these, as to all other omissions, we must again recur. Some taken apparently at very short distance with a large lens, appear to us particularly disagreeable. They are by Mr. Herbert Fry, we believe. Among them we may mention those of Lord Palmerston and Mr. Gordon Cumming; distortion is painfully visible in these, and as photography cannot flatter, we think at all events possible exaggeration ought to be avoided. There are a few good vignetted portraits by Mr. Delamotte, Mr. Brothers and other artists, among which we may refer to that of J. Watts, Esq., Mayor of Manchester; we object, however, to the yellow tint of the paper in this case. In this class also, we may refer to some very interesting pictures of patients in various stages of lunacy, placed in the north gallery. We entirely disagree with the writer in the *Manchester Examiner and Times*, who complained of their exhibition, and we think anything which increases our knowledge of the condition of the unhappy beings who are stricken in mind may fairly be counted among the useful agents for the amelioration of that condition. The next numerous class, namely, landscape photography, is shared with worthy emulation between amateurs and professionals. Many of the productions of this style are of high artistic excellence, and are fine exponents of the capabilities of the art. Among these, to Mr. Leverett's waxed paper pictures 523 and 526, may be awarded the first place, and we can scarcely have anything more exquisite than Messrs. Dolamore and Bullock's "Hampstead Heath," and the "Old Mill at Ambleside." And as good specimens of the early style of the art Mr. B. B. Turner's talbotype pictures may be referred to. One of them called "Photographic Truth" depicts a country church, both in the position of reality, and also the inverted reflection in a pond, with so much veri-similitude, that the early matin goer must needs beware. Mr White's well known favorites are good specimens of landscape photography. There is also one of Messrs. Mudd's best pictures, "A Scene at Trifriw," so good that we cannot help regretting that no more of theirs are to be found in the collection. We ought not to pass over the matchless sea and sky pictures by Mr. Le Gray and others.

This class admits of further subdivision which will bring under our notice architectural photography, in which Messrs. Baldus and Bisson Fréres stand first and foremost. We next come to the copyists, a class of which every art shews numerous examples, though none so literally as photography, and the very matter of fact character of this class constitutes its chief value; a notable instance of which may be alluded to—the collection of gems of this Exhibition which Messrs. Colnaghi are publishing, which will enable many to possess what would otherwise have been unattainable. We hope that every care will be taken to use the best possible paper and light for this work, as the specimens we have seen, for instance the copy of Mr. Frost's picture of Una and the Wood Nymphs, seem rather deficient in these respects. Of this class the copies of pictures in this year's exhibition of the Royal Academy by Messrs. Howlett may be cited, and we may here notice the inability of pictorial art critics thoroughly to understand the feeling of photographers. For example, the *Art Journal* speaking of the Royal Academy says, of No. 92, "The Photographer," (there is here a copy of it,) "The deficiency of the picture is that we cannot see a subject of interest sufficient to engage the attention of the photographer." We would ask whether painting or photography produces the artistic picture from the same material however inauspicious, and if photography loses the award we say with the *Art Journal*, "Photography has done much for art in the smaller works: it is recognisable everywhere in small landscapes and small figure pictures." Then of No. 28, the same critic says:—"This picture has much the appearance of having been painted from a photograph, but it surpasses photography because the detail of the shaded portions is as perfect as that of the light passage." A bad standard of photography was evidently present to the critic's eye, for who would pronounce as good, a photograph deficient in this respect? We do not pretend to notice every class into which photography may be divided, but we must not pass over in silence the artists of *genre*, who are not numerously, though well represented here. This class delights in subjects of allegory or imagination, and while we are bound to confess our own belief that these subjects are rather beyond the capabilities of photography, we cannot keep back a meed of praise from the works of Balders, Lake Price and Rejlander. This latter gentleman will readily understand why we prefer his earlier works, such as "Don't Cry, Mamma." "Barnaby Happy," and the "Scholar's Mate," &c., to those which he now exhibits. The best of these is that of the Cherubs from the picture of the "Maddona del Sisto;" this is done from the life, and though the angels are rather too much "of the earth, earthy," still there is a fine poetic feeling evident in the composition. A more ambitious picture is that of "Youth and Age," exhibiting extraordinary ingenuity and skill, being printed from some thirty negatives: the picture has many good points, but falls somewhat short of our idea of what allegory, as delineated, ought to be. As an instance of this in a really artistic view, let us refer to Mr. Maclise's fine picture of the "Spirit of Chivalry," rightly placed in a prominent position in the water color gallery. The enumeration of this class detains us not long, for after viewing some more of Rejlander's fancies, and some fine groups of armour and articles of *virtu* by Balders, and Mr. Price's "Don Quixote," we have done. This last is a fine composition, and whether we regard the arrangement of the material or the conception of the errant knight, or the praise-worthy points of the photograph we are bound to contribute our mite to the praise which this work has received. We wish that its reproduction by the Photogalvanographic Company could be made to equal the original, which we see here for the first time. We can only spare space to regret that we still labor under the restrictions referred to in our last.

From the London Art Journal.

AN ARTIST'S NOTES ON HAIR.

There is a beautiful kind of fair hair that is like an exceedingly thin shaving of wood: I do not mean the long corkscrew curls generally produced by the plane, but where the carpenter's hand seems to have somewhat caught and trembled, carrying off but an infinitesimal film, which travesties the peculiar *ripple* you see occasionally in fair hair. Such is a very exquisite and angelic kind of hair. The ripple relieves its straightness, and catches the light, but does not break up the masses. The form of the head is clearly seen through it, as through a veil, and there is a shimmer in it like metal—like gold veins in quartz:—

> "O'er her white shoulders fell her yellow locks,
> Like golden gleams on alabaster rocks."

There is in fine fair hair frequently a metallic lustre, which makes it very natural to apply the word "golden" to it. But this does not apply to fair hair alone—on some black hair you see quite a bright blue steel-like lustre. This remark mostly applies to the black races, where the hair has ceased to be woolly by intermarriage with other nations, when it often becomes straight, long, and abundant. I recollect such on the head of a brown West-Indian girl of mixed race. She had wonderful hair of this kind—in such weighty cold masses that it hardly seemed like a growth from a living creature. It tumbled down from her head in waves, like a black Niagara. It was wonderfully grand, and she was pardonably proud of it. The lights on it were like flashes of blue steel—intensely blue, almost ultra-marine.

The mixture of white, in black hair losing its color, is also metallic in character, like grey steel, or the fracture of iron, and is so called—iron-grey. Catlin, in his account of the North American Indians, affirms that a peculiar tribe, the Mandans, with whom he resided for some time, and whose manners and character he particularly describes, but which are now extinct, were frequently *born* with this kind of hair, and that he often saw children with all their young tresses perfectly grey. There is another kind of hair we call silver, because its color resembles that metal, frosted and polished, for its tints are modified in various ways.

But there is a greater diversity in the warm tints than even in the cold, running from one end of the gamut to the other. The pale gold runs into the full gold, that into the coppery, then into the red, then into the auburn, and lastly into the dark, almost black hair, with red in it. This is the grandest kind or hair, perhaps, of all—grander even than the black hair with bright blue lights, because it is stronger in character, richer, and more vital. It is hair one would fancy Samson had. This kind, however, is very uncommon. I have not seen it in perfection more than once or twice.

Red hair is not often the subject of praise, nevertheless, there are several kinds of it that are very beautiful. I know but one, indeed, which I cannot like, and that is the fiery, brick-dusty version which is associated with an unpleasing complexion of the sallow, pale, tallowy, or fire-burnt character. When, however, the complexion is agreeable—and it often is most charming and peachy when the hair is red—then the quality of the hair is commonly pleasing too. The delicacy of these tints, however, agrees better with the female than the male character, and therefore red hair is more agreeable in a woman than a man, in whom a certain pronounced vigor of appearance is looked for, which in red hair is apt to fall into the aforesaid brick-dusty and fiery.

The golden version of red hair is to this day especially admired in Italy, and in time gone by Titian often chose it in his pictures. It is not so great an evidence of its beauty that it is much coveted by some of the black tribes of the south-west of Africa, who use some preparation to remove the natural color of their own black locks, and give them the desired tint; but they rarely succeed further than the production of a dusty dun, which, however, is thought preferable to the original black. The turks, on the other hand, are more of our way of thinking, and, being proficients in the arts of dyeing, generally dye their red, as well as grey, beards black. This is usually done at the baths, and it is not thought derogatory to a "grave and reverend senior" to sit for some hours with his beard in a paste of litharge and lime, for the purpose of turning it to a glossy jet. In red-tinted hair, however, when the color deepens and embrowns into auburn, it is equally becoming to both sexes, although still, perhaps, it may be thought more appropriate to the female. Auburn is a gorgeous, glorious color, and when of the finest kind and the hair is abundant, I have seen the light on it like the setting sun on the trunks of yew-trees, where the outer bark has peeled off somewhat. Etty, in his gorgeous Ariosto-like version of Homer's syrens, has gifted the most impassioned lovely tempter and fiend with a profusion of such rich auburn hair. There seems, indeed, something peculiarly enthusiastic in auburn hair, and I do not realise any but a fervent character in union with it—at any rate, not artistically.

The color of almost all hair is finer for having some red in it: it gives it glow, richness, and vitality. The cold browns, and the hay and clay hues, lose much by their deficiency in this respect. Even white hair is more graceful and pleasing when there is some warmth in its tint, but in this case not from the admixture of red, but from the presence of slight degree of yellow giving it a sunny quality. I have seen occasionally, but rarely, some beautiful heads of hair of this color; the white, too, being the result of years, and which I have admired almost as much as young hair. Indeed, in this kind there appears to me no quality of age, any more than in the hair of a white animal, or the plumage of a bird. This is not the case with grey hair, which, though often pleasing as a tint, especially in a picture, is evidently in a transition state—the dark and the white contending for mastery in a struggle, in which the white is sure to have the best of it at last.

The hair of the Albino is like floss silk, or spun glass, and mostly in itself very pretty. Our viewing it as a phenomenon is in the way of our doing it justice. Among the Indians who dwell on the banks of the Amazon, white hair is looked on as the attribute solely of extreme old age, as they retain the dark color of their abundant long straight locks frequently to the ages of seventy or eighty. The strangest kind of hair is that of the Hottentots and Bushmen, which grows over their heads in little tight knots, like periwinkle shells, with insterstices between on the scalp bare of hair. This is not very beautiful according to our ideas, although kind Providence, no doubt, represents it to them as the perfection of *chevelure.*

Altogether Nature has been wonderfully various in the ways in which she has gifted human creatures with this appendage, and a complete dissertation on its diversities would fill a book. Nowhere perhaps, however, is there a better opportunity of seeing one class of its varieties than in England, from the admixture of races that has produced our population. The Saxon and the Celt afford opposite elements of these, insomuch that in the same family you not unfrequently observe great diversities of tint, ranging even from the very dark to the sunny gold. This chiefly occurs when the parties are of opposite complexions. It varies the domestic picture charmingly, especially when taken in conjunction with that subtle tie, family likeness, which marvellously causes the most diverse features to be recognised at first sight as akin. And this makes us think at once of a joyous circle of young people, perhaps at high games on a sunny afternoon, or round a Christmas tree, and then how the young tresses dance, and float, and glisten! What a beautiful thing is young hair! How fresh, clear, bright, and pure, when tolerably well kept, and brushed, and washed! It wants no more. How beautifully the young head adorns itself with its own growth, and how gracefully it showers down its rich veil over the white shoulders! Simple in general effect, how many are the forms and colors that the artist's eye detects amid its luxuriance!

In Art there is a wide field for treatment in its representation, both as to form and color; and very various have been the ideas of beauty with respect to it, and as to its most graceful character of growth. In the Greek division of the head into four parts of upright measurement, one-fourth was allowed for forehead, and one for hair, of which the line of growth was a regular arch from ear to ear over the forehead, making it thus look often small and low rather than expanded. The Romans went still further in this direction, and from the idea of going to the extreme from baldness, were in the habit, in their statues and busts, of bringing the line of hair so low over the eyebrows as to produce an unpleasant and headachy effect, as in the well known and beautiful "Clytie," in the British Museum, in which, by the by, the rendering of the hair itself is exquisite. We have a natural repugnance to "foreheads villanous low," and, though we must not confuse the true height of the forehead with the comparatively accidental growth of the hair, a low growth does certainly at first give an impression of a low head, and one wishes the hair was off a little more, so, as it were, to give the brain more freedom to think. We are now inclined to claim for unclouded forehead a greater elevation than either the Romans or Greeks. And it may be seen in the works of the day, where beauty and dignity are sought, that considerably more than one-fourth of upright measurement is allotted to the frank uncovered forehead. This clear brow is the attribute of man, and there is a peculier intellectuality in a clear temple; as if, indeed, those parts were especially the temples of thought, and as if, where the bone is thinnest, you recognised the brain the most. Perhaps the noblest and most intellectual character in male form is gained when the hair is somewhat sacrificed to the head, and when the forward and nobler portions have grown bare, as it were, by having been much exercised, and the hair is thus confined to the back half of the head. This was the character of Shakspere's appearance when some thirty or five-and-thirty (for he early lost his hair), and he has some quaint raillery on the subject. In the "Comedy of Errors," for instance, Dromio asks why Time is such a niggard of hair? And Antipholus answers, "Because it is a blessing that he bestows on beasts, and what he hath scanted men in hair, he hath given them in wit." Newton's hair, on the other hand—that other great English mind—although it early lost the tint of youth, was retained even to advanced age, when it is described to have been of a beautiful silkly whiteness, presenting the most venerable appearance possible.

In the eleventh chapter of the first epistle to the Corinthians, St. Paul characterises long hair as "a shame to a man, but a glory to a woman." This probably alluded to some especial extravagance on the part of the Corinthians, and not to men's hair hanging down only to the shoulder, as Milton characterises that of Adam, while Eve's hung down to her lovely waist. In Milton's time, during the reign of the two Charles and the Commonwealth, even the Puritans wore their hair in Adam's fashion, although they occasionally cut it much shorter than did the cavaliers, whence arose the name "crop-eared knaves." Even Cromwell wore his hair long, as his portraits testify; and his secretary, the poet of "Paradise Lost," wore his parted, and flowing in waves till it reached the shoulder, like his own Adam. In Brittany, at the present time, the hair is treated in remarkable opposition to St. Paul's injunction, as the men wear theirs very long, and the young women cut theirs quite short, and conceal what remains wholly under their frightful caps, vastly preferring these artificial erections of linen and starch to Nature's own beautiful decoration—indeed, a woman is never considered full dressed while a single tress finds its way to sight. Among the Greeks and Romans the men wore their hair short, or, at any rate, compact and confined by a fillet, and it is only in the antique busts of so-called "barbarians" that we find the hair long and flowing. The Greek women encouraged the length of their hair, but bound it up in various compact and graceful ways at the back and top of the head. The Roman women occasionally cut theirs quite short, *a la Brutus*, and dressed it in many small curls, in an artificial and unbecoming manner, as is to be observed in the otherwise beautiful statue of the "Agrippina."

The occupation of the sexes seems to point to men wearing their hair shorter than women, so as not to be in the way of their robuster exercises; yet, in some tribes of the North American Indians, the warriors encourage theirs to grow to an inordinate length. Catlin mentions a certain chief, who, when on horse-back and accoutred for the fight, when one would think it would have been desirable to make every thing as compact as possible, wore his hair, on the contrary, streaming out behind him some five or six feet; and after a fashion, too, that could be no real ornament, as it was stuck together with a paste of ochre and gum in straight ribbon-like tails. Among, however, these races it is the women who are the hard daily workers, and the men, in the intervals of the chace and war, have nothing to do but to sit at home or saunter about their lodges, so that the dressing and adornment of their long hair may be a great resource. Nevertheless, some tribes go to an opposite extreme, and shave their hair to a single top-knot, which, accordingly, monopolising all the nourishment, grows, as with the Chinese, to an inordinate length. These latter occasionally coil their occipitial tails, thus produced, closely round on the top of their heads, in the likeness of a porter's knot; this coil becomes so substantial as to resist a sword cut; but they leave the sides and above the ears all bare and blue from close-shaving. You cannot subject a Chinese to an indignity equal to that of cutting his tail off. The Javanese men wear their abundant long black locks intact, and take much delight in combing and oiling them. Some English officers, landing for the first time, saw a party of the exquisites of the country so employed, and took them at first sight for women, till undeceived by their guide.

Among the antique busts we may remark a variety in the hair, even among the gods. Jupiter and Hercules, Mercury and Apollo, have each their own style. Homor, who sang them all, has still another manner—at least the beautiful bust in the Museum represents him with long thin hair, smoothed carefully forward, and confined with a fillet, so that the old man's tresses curl gracefully on either side. The thatch, so to speak, of the brain has commonly been cared for, and its absence regretted. Cæsar petitioned the senate to be allowed to wear a wreath of laurel in public, to conceal, he said, the loss of his hair, though perhaps also with a political aim—viz., to accustom the people to his wearing something like a crown; and the Emperor Tiberius wrote a treatise on the management and preservation of the hair.

From the Liverpool Photographic Journal.

THE ALBUMEN PROCESS ON COLLODION.

BY WILLIAM CROOKES.

Although I intend to give a description of one particular process which I have now employed for nearly six months, and in which I have met with far more uniform and certain success than in any of the other dry processes on glass, yet the photographic and chemical manipulations which will have to be described, and the new piece of apparatus which I shall bring before your notice, will be found useful in many of the operations of photography, especially in the numerous methods of preserving the sensitiveness of collodion plates, which are now attracting much attention. I am also the more induced to address you this evening as it is the last meeting for some months, and although I do not anticipate that photographers will give up any process in which they have acquired dexterity and a moderate hope of success, for one, which, coming so late in the season, leaves them very little time for obtaining the necessary facility to ensure good results; yet I still hope that they may find a few of the hints herein contained useful in the approaching vacation, whilst probably some photographer, not yet wedded to any particular process, may be tempted to follow my instructions more closely.

I have called it the albumen process on collodion, because, whilst I started originally with Taupenot's process, taught me by its excellent popularizer, Mr. Ackland, I have gone on simplifying and, as I fancy, improving, until the distinctive features of the original method are lost, and it becomes little more than the old albumen process.

Instead of employing the collodion film as a photographic agent, and performing a double system of iodizing, exciting, and washing, I consider the collodion as merely a mechanical agent, affording, on its newly-formed and delicate surface, an infinitely purer support for the albumen film than the most scrupulously cleaned glass.

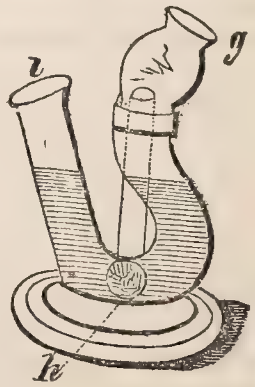
A plentiful supply of water is indispensable in nearly every stage of the process, and where this is not ready laid on, a convenient substitute may be made by placing a two-gallon stone bottle near the operating bench, and standing on a shelf a little distance above the working level; into the mouth a cork is loosely fitted, having two glass tubes going through it, one passing to the bottom and projecting a few inches through the cork to allow of a piece of vulcanized india-rubber tube being slipped over the end, and the other merely passing through the cork to allow of the ingress of air. To the other end of the india-rubber tube a tap with a rather narrow orifice ($\frac{1}{4}$ inch) is attached, which may be either fixed immoveably to a support at the proper height, or be made capable of moving to different parts of the bench; by applying the mouth to the tap; and sucking the air out of the long tube, the water in the bottle will be drawn over the bend, and the arrangement then being that of a siphon, the water will be ready to flow from the tap so long as any remains in the bottle. Underneath the tap there should be a sink, or a large dish with a pail and siphon tube under it, and in this the levelling stand must be placed. As the development takes some hours, I have a stand which admits of several plates being placed side by side; *it* consists of two parallel rods of brass, 18 inches long, and 5 apart, five points projecting upwards from one of the rods, and five *pairs* of points (about 2½ inches apart) projecting from the other rod: the tips of these points must be in the same plane; the whole is bound together by suitable frame-work, and supported on levelling screws as usual.

For pouring on the collodion I prefer one of the tall, narrow bottles usually employed for such a purpose; but for the albumen mixture, owing to the extreme difficulty of avoiding air-bubbles and froth, and of getting them off the plate when once they have accidentally flowed on with the liquid; an ordinary bottle is inapplicable. I have devised a little glass instrument which answers the purpose most admirably, and as it filters the solution each time of using, the froth and dust or floating specks are entirely got rid of at the same time. It consists of a glass tube, bent as at *g i;* into the bottom a piece of fine damp sponge (*h*) is pressed, completely filling up the bore of the tube for about $\frac{3}{4}$ of an inch of its length, and sufficiently tight to act as a filter for all floating particles, and at the same time to allow the liquid to pass through tolerably freely.

Any solution poured into the mouth (*g*) of the instrument will at once flow through the sponge (*h*) until it has attained the same level in each leg; in using, care must be taken always to pour *from* the end *i*, and to return the solution through *g*; by this means it will be filtered each time.

This simple and inexpensive piece of apparatus, which any instrument-maker or glass-blower can supply at a few hours notice, will be found invaluable in almost every photographic process on glass. The sponge has this great advantage over all other kinds of filters, that thick glutinous liquids, *e g.* honey, albumen, gelatine, metagelatine, or the various preservative syrups, flow through it with the utmost readiness, whilst at the same time, dust, air-bubbles, or froth, and dried particles floating in the liquid are effectually kept back. By a very slight modification in the form, stoppers might be ground into it, and then it could be used for collodion.

I have also contrived a very convenient box for storing the sensitive plates, which keeps them perfectly light-tight even in the sun, and at the same time is less bulky than the ordinary wooden ones. It is made of tin plate, the cover sliding tight over the top, and more than half-way down the sides; light is further prevented from access by means of an outward jacket of tin, which is soldered to the box a little below the centre. The cover thus slides between the case and jacket, and renders injury to the plates from the entrance of light an absolute impossibility.



Before these boxes are used, they should be well scrubbed, especially in the corners, with soap and hot water, then well rinsed with water, and afterwards with pure alcohol, and allowed to dry spontaneously; a cover of blotting-paper being put over the mouth while drying to keep out dust.

The collodion employed should be very thin and fluid, and the film should be of that short, powdery character which is obtained by employing hot acids in making the pyroxyline; it should not set in ridges or network recticulations on the surface, but ought to be as smooth and clear as glass: provided these conditions are fulfilled, it matters little what collodion be used, old or new, iodized or uniodized; the latter is what I usually employ, diluting it first with the proper quantity of alcohol.

The same precautions against floating specks in the collodion, or dried particles round the neck of the bottle, must be taken as in the case of the moist collodion process *

The albumen mixture is made in the following manner:—Take the whites of three or four eggs, carefully separated from the yolk and white stringy particles, and put them in a bottle capable of holding about double the quantity; now add to each ounce of albumen about two drops of glacial acetic acid, put in about a teaspoonful of well washed coarse sand or bits of broken glass, and closing the mouth of the bottle with the thumb, shake the whole violently for a minute or two. In about half an hour strain through muslin, then filter through a funnel which has a piece of fine damp sponge pressed loosely into the neck, and add one or two pieces of camphor about the size of a pea.

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* I have obtained good results with almost every collodion tried, but there is one which for this process is so pre-eminently superior to any other, than to pass it over unmentioned would be unfair both to my audience and to the makers, Messrs. Hopkin and Williams.

Next prepare some of Maxwell Lyte's, solution of metagelatine in the following way:—Place half an ounce of fine white isinglass in a clean Florence flask, and dissolve it in three ounces of distilled water; hasten solution by means of a gentle heat, and when dissolved, boil it violently with a gas or spirit-lamp for a minute; then add a mixture of 20 minims of oil of vitriol and 1 ounce of distilled water, and boil again violently for five minutes; allow it to cool, and then boil it a third time for five minutes, and repeat the boiling and cooling until it no longer sets on cooling (it will probably require this to be repeated twice after adding the acid). During the last time it is being heated, add to it precipitated carbonate of baryta until the sulphuric acid is neutralized, which will be known by all effervescence ceasing (the quantity required will be rather less than 80 grains of the pure carbonate). Now add water to make up the bulk to 4 ounces, strain through muslin, and when tolerably cool, add about ½ a drachm of albumen prepared as above; shake up well and heat once more to the boiling-point, and the albumen in coagulating will be found to have carried down with it the whole of the finely divided floating sulphate of baryta, and the liquid will now filter with the greatest ease and rapidity through filtering paper.

To prepare the iodized albumen solution, take

Prepared albumen.............	1 fluid ounce.
Solution of metagelatine........	1 " "
Distilled Water...............	2 " "
Iodide of calcium..............	12 grains.

Mix these together and filter through blotting-paper until quite clear, and then preserve in a well-*corked* bottle with a few grains of camphor, until required for use. It will keep good, in a cool place, for two months at least, and in all probability much longer.

I have taken excellent and clean pictures when the plates of glass were actually dirty, being covered with smeary finger-marks; and although I do not think I have traced many stains to this cause, yet as no true photographer would ever knowingly employ dirty glasses, I need hardly say, clean them thoroughly. Each experimentalist has a way of his own by which the plates are supposed to become cleaner than by any other method; I would not recommend any alteration to be made, as really less care is necessary than for the collodion process. Plates which have been previously used for this process may require to be soaked for a few hours in a dish or pail containing a strong solution of common soda, before the hardened albumen is loosened sufficiently to come off. If it be very refractory, recourse may be had to a hard nail-brush, which will always be found irresistible.

After the glass plate has been cleaned, it must be coated with collodion in the usual manner, and then, after allowing it to set for a second or two longer than the ordinary time, laid face upwards in a flat dish of water (not necessarily distilled.)

When it has remained there a minute at least, and as much longer as convenient, it is to be taken out, held sloping under the tap, and have a thin stream of water flow gently over the face, in order to wash away any slight greasiness from alcohol still remaining on the surface, and also to remove anything which might have settled on the surface whilst in the water. It is then to be stood up sloping and face inwards against a perpendicular board or wall to drain, one corner resting on two or three folds of clean blotting-paper, and the opposite corner resting against the board perpendicularly over the lower one; the plate thus touching by two points only. As soon as it has drained for half a minute, take it by one corner, wipe the black dry with blotting-paper and pour about an ounce and a half of iodized albumen solution into the mouth (*g*) of the glass pourer described above. Pour the iodized solution from the end (*i*) of the pourer on to the (formerly) upper end of the plate; allow it to flow over the surface driving the water before it until it gets to the corner which was lowest, where pour it back into end (*i*) of the pourer; repeat this once or twice, or until any specks or bubbles which may be seen on the plate are washed off. When coated, stand the plate either against the wall in a corner, or what is much better in this case, in a light wooden frame, where the bottom edge rests at two points on strips of blotting-paper, covering the rods, and held with its face sloping downwards by pieces projecting from the upper rod, and supporting the plate by the centre of its upper edge: the whole stands on four legs so as to admit of a free current of air. By this means the plates dry regularly and evenly, whilst no dust is likely to settle on the surfaces, especially if they be placed in an unfrequented part of the room; they will be dry in two or three hours, and may then be rendered sensitive, or preserved for future use in boxes: they will keep in this stage for an indefinite time.

I usually prepare twelve plates at a time, and by a little care to dovetail the successive operations one with the other, that number can be prepared ready to be made sensitive in little more than half an hour; this latter operation occupies not more than a couple of minutes for each plate, but as the iodized plates must be used dry, they cannot be excited immediately after the iodizing.

The sensitizing bath consists of the ordinary 30-grain solution of *fused* nitrate of silver, saturated in the usual way with iodide, and containing ½ an ounce of glacial acetic acid and ¼ ounce of alcohol to every 8 ounces of solution; (an ordinary collodion bath will do, if it have the above proportion of acetic acid added to it). It will become discolored by use, but this may be disregarded until it has become almost as dark as port wine, when some kaolin shaken up with it will remove the color, and after filtering it will be as good as at first.

Up to this point all the operations may be performed by daylight. Just before the iodized plate is made sensitive, it must be slightly warmed before a fire or over a spirit-lamp, to drive off the moisture from the surface, and then, the room being darkened, it is to be immersed in the silver bath in a similar way to a collodion plate. After remaining there for about a minute, hold it under a tap and wash all the silver solution from the plate, back and front. It is not necessary that this water should be distilled, ordinary water such as London is supplied with will answer perfectly. If, however, it should happen that the washing water contains a very large quantity of extraneous matter, it will be as well to rinse the plates, after washing, with some purer water, or the salts being deposited on the surface as the water evaporates might give rise to spots and stains; then stand up to drain on clean blotting-paper in the way recommended after iodizing. Artificial heat may now be used to dry the plates, but it will be safer to wait till the water has evaporated spontaneously; they will now be ready to be stored away in light tight boxes for use at a future time.

The length of time which these plates will keep, depends more upon the care and forethought which has been bestowed upon their packing, than upon any inherent principle of decomposition which they contain; this, in an ordinary deal plate-box, I have found them slightly fogged at the end of a week or ten days, whilst in a clean tin box, such as I have above described, there seems to be no limit to their keeping property.

The sensitive film has quite a different appearance to that of collodion, being perfectly transparent, and of a hard horn-like surface, bearing tolerable hard friction without injury.

Regulating the time of exposure is, as in every other process, entirely a question of experience to decide. I find the best results are generally obtained by exposing about five or six times as long as tolerably sensitive wet collodion would require; but it may vary within very wide limits without much injury to the picture.

Better pictures are obtained by rather over than under exposing: in the latter case, the detail in the faintly illuminated parts will be entirely lost, whilst the only ill effect of the former plan will be a slight excess of half-tint, and by careful development even this may be in a great measure avoided.

To develope, I prepare the two following solutions, each of which will keep good for an indefinite time:—

Gallic acid	100 grains.
Alcohol	2½ ounces.
Water	2½ "
Nitrate of silver	100 grains.
Glacial acetic acid	2 ounces.
Water	16 "

Mix together in a Berlin porcelain dish of a hemispherical form, (which must be first scrupulously cleaned with strong nitric acid, applied hot if necessary), equal parts of these two solutions, and having previously wetted the surface of the plate drain it well, and pour the above mixture off and on several times, and then let it rest on the surface of the plate, which must be supported on the levelling-stand.

The development is rather slow, especially if the temperature of the room is lower than 60° Fahr.; the picture will not sometimes commence to appear for the first quarter of an hour, and may take four or five hours before the operation is completed; more frequently, however, if the exposure has been correct, an hour and a half will suffice.

If stains appear during the development pour the solution off, and holding the plate under a thin stream of water, gently rub the surface with a large camel-hair pencil; this will generally remove every particle of the stain, whilst it will in no way injure the surface of the plate or the development of the picture; if the developing solution has kept tolerably colorless, it may be poured back again, but otherwise a fresh solution must be made. If, also, the development be very slow, owing either to the low temperature of the room or a too short exposure, the solution may be poured into the porcelain dish and gently warmed with a spirit lamp before pouring it back. Fresh developing solution must be made as soon as the former has become discolored, and previous to pouring it on, the surface of the picture must be well rubbed with the brush as described.

It must be distinctly understood that these tedious operations are only necessary under circumstances in which the picture by any other process would have been lost at once. The plate may contain a subject which it would be very difficult or impossible to obtain a second time, and the operator must judge whether a negative be worth the extra trouble. In ninety nine cases out of a hundred nothing more will be needed than to pour the solution on and let it remain there until the picture is developed.

When sufficiently developed, the plate must be well washed, and, according to convenience, it may be dried and preserved for fixing at a future time (of course in darkness); or this operation may be performed at once by means of hyposulphite of soda and copious washing, in the usual way.

After drying the plate will be finished; no varnishing will be required, as the albumen surface is sufficiently hard to resist any violence to which a negative ought to be subjected.

The great objection to similar processes, such as the albumen and Taupenot's is the liability of the surface to rise in blisters during the exciting and subsequent development. This is caused, according to my experience, either by immersing the iodized albumen plates in a slightly damp condition into the silver bath, or by employing the collodion or iodized albumen is not sufficiently thin, dilute state. Knowing this, I am now never troubled with these annoyances.

I have employed the foregoing process very successfully in printing transparent glass stereoscopic slides. In this case the operations must be performed on the rough side of the finest ground glass, (not *clear* glass purposely ground, but patent plate, one side of which is left in the last stage before the final polish is given to it.) That some such arrangement as this is necessary, will be seen on a moment's consideration: the positive, printed by superposition, must be viewed with the picture-surface next the eye, or the sides will be untrue to nature; it must consequently have the protecting glass mount in front of it. Were it printed on the clear side of ground glass, the rough outer side would be very liable both to contract dirt, and also, from frequent handling, to be strained with transparent grease marks difficult to remove. I believe the glass stereoscopic slides usually met with have the glass clear on both sides, and the picture is afterwards coated with a kind of semi-opaque varnish, such as wax in alcohol. This plan is very good, but the one I propose is equally effective and less troublesome.

The dimmed side of the plate is prepared and rendered sensitive absolutely in the same way as before described. When perfectly dry, the face of the negative and the sensitive side of the plate must be placed in contact, and the two pressed together in a pressure-frame. If this be of the ordinary construction, a piece of opaque card or paper must be placed between the negative and the front glass of the frame, overlapping for some inches on all sides, and having two holes cut in it the size of each picture, similar to a mount. The object of this is to prevent light from getting access to the sensitive plates at the sides; if it does so, not only will the plate darken at the edges, but the light being reflected from surface to surface internally along the glass, will extend its fogging influence nearly to the centre.

An exposure of a few seconds to diffused day-light, or a few minutes to the light of a moderator lamp, three inches from the globe (in this case one side must be exposed at a time, the other remaining covered), will, with ordinary negatives, be ample; the development, &c. may be performed in the above-described manner.

From the Cosmopolitan Art-Journal.

THE POWER OF BEAUTY.

The most powerful thing, says an Arab probverb, is a *beautiful woman;* and the Arab is a philosopher, in the cosmopolitan sense, as any one may learn for himself, by placing his heart in the way of one of the willing ones of her sex. The wife of Darius had a power over Alexander which no three hundred thousand men could compass. A Helen had power to instate the Trojan War, whose magnificent drama the sublimest poet of Heathen Greece has rendered immortal; a Cleopatra "shook the earth to its centre" by her frown, and won Anthony by her smile; a Cesar submitted to be led by Octavia; Hypatia had strength, for a time, to oppose the Bishop of Alexandria in his endeavors to forbid the worship of the falling Jupiter. All these examples were, perhaps, patent to the Arab, and, gave him confidence in the truth of his saying. But the Arab needed no reference to such noble and distant instances; his own household could furnish him ample proof of the wisdom of the proverb. If we are to believe Bayard Taylor who sang;

> "Daughter of Egypt, veil thine eyes;
> I cannot bear their fire"—

even the modern houri is tempting beyond words, and compels a worship of which Sesostris might have been proud.

But we Franks need not go abroad for our proof of the proposition. Here—as in the Orient, as in Italy, as in Paris, as in Covent-Garden Theatre—woman reigns over hearts as imperially as did Dido over Carthage and the heart of the fickle Æneas. Of this we almost daily have confirmation; and may be permitted a narration of a few incidents to illustrate.

In a studio "up town," hangs a face which, in the darkness of a recess, scarcely attracts attention. It is that of a woman, dressed in mourning, and lined with traces of a great grief. But it bears the impress of a lofty dignity, a Christian fortitude, a self-reliance and power, which render it decidedly beautiful—albeit the nose is slightly masculine, and the forehead too high and full of grace. A visitor to the Artist's studio was a certain well-known patron of Art, whose heart, however, seemed insensible to the power of living flesh and blood, though it seemed devoted to the "creatures of life," as they passed from the easel to the wall. During one of his calls, the sun shot his rays in at the skylight window, and, reflected by a piece of shield hanging on the side-wall, the light fell upon the lady's face. The gentleman started, went forward to the picture, and soon was lost in its study. "A master's hand must have done this," he said to himself. "What exquisite finish, and perfectness in detail!" And from the study of the whole he began to dwell upon

EGERIA.

Negative by L. E. WALKER.—H. H. Snelling, Print.

its parts—hair, nose, lips, chin, bust,—all passed in review under his critical study. "Who is this?" exclaimed he. "It is my aunt, whose husband was lost in the Arctic," said the painter; "and I have finished up her face from a daguerreotype. It has been a labor of love, and I love it very much. This very day I look for her here." "Delightful!" exclaimed the visitor; but whether at the picture or the promise of a visit, we may not say. Even while they spoke the lady came in, dressed very modestly in dark half-mourning. She gave the Artist, a real, warm, loving kiss, and called him "my boy," very tenderly. "Lucky dog!" exclaimed the visitor to himself, he supposed; but the lady heard, and was astonished. The Artist, however, called to his friend, and introduced him. A sitter at that moment appeared, in the person of a niece of the gentleman connoisseur; and it was evident, by the way the Artist flushed at her entrance, that he had some interest in her, artistical or otherwise. Ah, *she was* a beauty! The great city scarcely compassed such another, so full of radiance was her face, so lithe and graceful her form, so ringing the music of her voice. Her bonnet was in her hand, "from running up fourteen pair of stairs," she said; and her face was glowing with the rich color of health. She came forward, giving her left hand to the Artist, very coquettishly, while her uncle looked her full in the face and laughed—at what, he scarcely knew. "Madam," said he, turning to the Artist's aunt, "I do think that girl the fairest creature on this good earth, and the boy shall have her, if—if you will have me! Oh! you are so nobly endowed, I know—you have sorrowed so much, that I indeed love you as I never before loved any woman. Let me place my hand in yours and call you mine, as your boy shall call my darling his. Shall it be?" And suiting the words to the action, he seized her hand; the Artist and the girl dropped on their knees before the astonished woman; and, ere she was aware, all were crying and laughing together. One week from that time, a gay scene transpired in the parlors of a Sixth Avenue mansion; for a double marriage at church that day, had set that quarter into all manner of excitement. It seemed *so* queer that the irreproachable Mr. P. should be "caught," and should give up his beautiful niece to a poor Artist, the wondering said; but when the affair came to our hearing, it was no mystery,—simply a happy illustration of the Power of Beauty.

We have heard of a child lured away into the wood by the song and plumage of the bright birds, and of the witchery which the fields and woods have for the simple heart. It is a natural thing—a child is Beauty's self, and it seeks the associations most in harmony with its own pure nature. A little girl of our acquaintance is in perfect raptures over a pretty dress, and is extremely fond of display, simply because of the appeal to her taste which it makes. This, we are sure, is the case with many women whom the world terms proud. They lavish much money on jewels and dress from the same impulse by which an artist is moved who loves to use Titian hues; and in our judgment we should carefully discriminate between such a love of adornment and the grosser taste which scrupuously follows fashion for fashion's sake, lavishing money upon ornament, simply because it is "the style," and not because it is intrinsically beautiful.

We were present at the Publisher's and Authors' Festival, given in the Crystal Palace a couple of winters since. Present in that crowd of "the profession" were many notable persons—women and men. Among the former was a matron of fifty, whose complexion was as pure as a child's, and whose beauty was still in its freshness. Her dress was of elegant velvet, but quite without the tricksy appendages which had long been *ton* in the way of trimmings. Upon her forehead, at its apex, gleamed a jewel of much purity; and this was her almost only "ornament." Among fifty ladies she was the most observed, and won from all warm encomiums for her beauty and consummate good taste. Another lady present, equally eminent in the literary world, was dressed in the very reverse style—low-necked, short-sleeved dress of dark satin—much jewelry over head, neck, wrist, and hands, and a general "flash" appearance. Of her we heard many really rude speeches; and it is certain she possessed no real *power* over those who waited upon her words. Such is association; and we may say honestly and earnestly to our lady friends, that there is a discord in the harmony of their beauty, when they dress in *outre* taste, and use ornament to profusion.

A gentleman of our acquaintance was passing through Ohio, a few years since, and met in one of the "country balls" which he attended, a rustic belle whose charms caught him captive. It was a real case of the power of beauty; for, educated in the customs and etiquette of the city, he found nothing of Fifth Avenue in the young beauty. Her simplicity and beauty prevailed over tastes that rebelled at her rather untutored ways, and he wooed and won her, placing her *after marriage*, in a school on the Hudson, where she at length became an adept in modern social usage, and well perfected in her several studies. Then she was introduced into city life, and won all hearts by her beauty and the naiveness of her manner; but "position" turned her head, and the "sweet woman" soon became merged into the dashing woman of fashion, extravagant to extreme, luxurious in living, and a regular *habitue* of the opera and theatre. Beautiful still, the power of the quality is gone; and the husband is no longer happy in her charms, and has been heard to say he would consent to go to Ohio and farm for a living, if it would restore his wife to her former simplicity and purity of heart. The hearth-light of that home is gone out

We might multiply histories, *ad infinitum*, to illustrate the physical and moral force of the Beautiful, but space forbids; and as we find our article assuming something of a serious manner, we reluctantly cut it short. The subject of the relationships which Physical Beauty sustains to Art, is one prolific of much thought—much discussion; and this branch of the topic we leave to future papers. As time and occasion offer, we shall try and talk familiarly to the reader of these questions, too often rendered abstruse and repellent by the dry and impractical abstractions of writers who ought to be popular, but are not. The Beautiful has power that is too little noticed, in our hurry after the gold bubbles that so often vanish into thin air when we think to grasp them; and it can do no harm for us to preach our little sermons, in hopes of winning the readers of the "Cosmopolitan" to, at least, a thought of the Beautiful and the True.

From the Jour. of the Phot. Soc.

PAPYRINE.

Exeter, May, 12, 1857.

To the Editor of the Photographic Journal.

Sir,—In the Photographic Journal for April 21, 1857 (No. 53), appears an article referring to a Lecture by the Rev. J. Barlow, read before the Royal Institution, on the subject of a *soi-distant* discovery by Mr. W. E. Gaine, of the effects produced by submitting paper to the process of immersion in sulphuric acid, then in water, and afterwards in a weak solution of ammonia. This process, however, is no new discovery; for if any one will look into the 'Receipt Book,' by Henry Beasley, second edition, published in 1852, he will find this article, which I copy *verbatim*:—"Papyrine. Dip white unsized paper for half a minute in strong sulphuric acid, and afterwards in water containing a little ammonia; when dried it has the toughness and appearance of parchment." I followed up some experiments on this subject in the fall of last year, being desirous, for certain purposes, which I hope hereafter to lay before you, to procure a paper which should be very absorbent but at the same time very tough. I had the pleasure of exhibiting at the last meeting of the Devon and Exeter Photographic Society some specimens of this paper, prepared according to Beasley's receipt. I have been able to make it absorbent on one side and parchment-like on the other. This substance seems capable of being used in many unexpected ways. It is a noteworthy fact, that paper which breaks with its own weight when wet with water, becomes so tough under this process as to require very considerable force to tear it.

I am, Sir, your obedient Servant,

J. W. Harris.

For the Photographic & Fine Art Journal.

HELIOGRAPHY AND ITS PROFESSORS.

THE MAGNETIC TELEGRAPH AND STEAM LOCOMOTION WITH THEIR USES.

Mr. Editor:—In previous communications I have spoken strongly, and, as some perhaps may think with exaggeration, of the importance of the Heliographic Art, and of the momentous agency which, in my view, it is destined to exert in that advancement of our race, which so many causes beside are conspiring to effect. May not the discovery of this Art contemporaneously with a multitude of other discoveries, which, in their effects, rank among the most remarkable and powerful of any recorded in history, be without superstition regarded as Providential?

Let us glance at some of these other discoveries.

First, there is the Magnetic Telegraph. By means of this, intelligence is flashed almost instantaneously from one to another of the most widely-sundered places on the globe. By night as well as by day--in the wildest tempest not less than in the calmest, serenest weather—across the fields, piled high with the snow-drifts of the most intensely cold winter, equally as across those fields, when waving with the green luxuriance and basking in the genial sunshine of summer,—beneath, as well as above the surfrce of the earth—and even along the bottom of that ocean, which tosses thousands of miles' expanse of ever-heaving billows between the denizens of two continents—this never-tiring, always faithful courier carries to its destination whatever message may be committed to its charge, whether it be the most important State-document,—or the business man's missive,—or the message of the affectionate parent to a beloved absent child,—or a few words of remembrance or of information from one friend or acquaintance to another. By this invention the very ends of the earth are, or will be provided with the appliances for communicating and interchanging with each other, with well nigh the celerity of thought. Who can measure the value of such a power? By bringing the world's population into better mutual acquaintance, a large stride is taken towards that condition of things, which the Prophet has long foretold and the Philanthropist hoped for and yearned for—the era of the so-called solidarity of the race—of the verification of that motto, which, in France, has so often proved a misnomer, the Liberty, Equality and Fraternity of human kind!

Second, we have steam locomotion. The immense importance of this in expanding the commercial and other modes of business is obvious to the most cursory glance. For practical ends it, moreover, goes far towards annihilating space and time, and brings into close neighborhood places and people, which have, heretofore, been so widely separated as to be almost strangers to each other. It combines with the Magnetic Telegraph, in facilitating the reciprocal acquaintance of people occupying different sections of the same country, as also of those inhabiting different quarters of the globe. Such acquaintance, as already hinted, tends to produce general illumination, civilization and refinement, since the attainments of one people in science, in the arts, and in the practical appliances of life become known to and diffused among all the rest.

The magnitude and value of these two discoveries all must concede. But the Heliographic Art is well worthy of being ranked with them. By the *cheapness* of its productions, all classes, even the poor, are enabled to procure portraits of relatives and friends, as well as of the celebrities, male and female, of all ages and countries. On the excellent influence of these portraits, in keeping alive and fresh the family and social affections, and in effecting a familiarity with the acts and characters of the great and good, I need not enlarge.

This art, moreover, furnishes to all very many of the advantages of travel, both in our own and in foreign countries, without its expense and inconveniences. Sitting by our own firesides, we may behold the "image and superscription" of the most far away lands and seas, mountains and valleys, works of art and venerable antique ruins—and best of all, the populations of those lands in veritable form, feature, and costume! The amount of useful and interesting knowledge to be thus obtained—of innocent and healthful pleasure to be enjoyed—and of artistic culture to be diffused—cannot readily be calculated.

These three discoveries, in their several spheres, are instrumentalities working powerfully and incessantly towards bringing forward the day, when the countless nationalities and tribes and communities of earth shall be linked by the adamantine bonds of Love, in one vast fraternity, reciprocally giving and receiving kind and friendly offices—when "the sword shall be beaten into the plowshare, and nations shall not learn war any more."

But from this view one conclusion follows:—

If Heliography, in its nature and destinies, be what I have intimated above, then its Professors and Operants cannot be ungifted, imbecile, uncultured persons. Such are not adequate to its requirements. But they *should* be

First. Men of genius—not, of absolute necessity, men of the *very largest* genius—yet possessing a fair measure of this endowment.

Second. Men of education and accomplishment. Not, necessarily, *scholastic* education—but *such* as a man of genius can acquire by *observation* of that infinitely rich and varying universe, that embosoms him, as also of that other and nobler universe existing within his own mind and heart. And

Third. Men of pure morals and high toned character, since *moral obliquity* tends to debilitate and turn away the powers of the intellect.

Hard requisitions these! But *I* did not make them—they were made by the universal Disposer of events. And I believe their *propriety* will be at once recognised by all who are used to look beneath the surface of things, and who entertain other views of art, which hold it, as something better and higher, than a *mere money-making trade!*

M. A. Root.

SOLAR PHENOMENA.

[Concluded from page 222.]

"Sir William Herschel first proved that different parts of the prismatic spectrum exhibited different thermic powers. By thermometric examination Herschel and Englefield found that whereas *quite out of visible light*, beyond the confines of the red ray, the thermometer rose, in two and a half seconds, 18°, it rose in the same time, 16° in the red ray, 6° in the yellow, and but 1° in the blue, no change whatever being produced in the violet. From this it is at once apparent, that the illuminating and heating maxima are not coincident, and that the refrangibility of light and heat are different, Sir John Herchel has still more convincingly proved this in the following manner:—

"'The thinnest post paper, such as is sold for foreign correspondence, was stretched on a frame. One side of this paper was blackened with Indian ink, or, which is better, smoked in the flame of oil or turpentine, or over a smoky candle, by drawing it often and quickly through the flame, giving it time to cool between each exposure, till it is coated on the under side with a film of deposited black, as nearly uniform as possible. The white side of the spectrum is exposed to the incident spectrum, properly adjusted; keeping the blackened side hollow to admit air and to avoid rubbing off the black coat. A fiducial dot being made on it, and this brought to coincide with the standard yellow ray, a flat brush, equal in bredth to the paper, dipped in good rectified spirits of wine, is to be passed over the white surface till the paper is completely saturated which will be indicated by its acquiring a uniform blackness in place of the white it at first exhibited. After a few minutes a whitish spot begins to appear considerably below the extreme red of the luminous spectrum, which increases in breadth until it equals the breadth of the luminous spectrum, and extends moreover within it, up to and beyond the fiducial yellow. In this state, and just as the general drying of the paper begins by whitening the whole surface to confuse the appearances, a second, sudden, and copious wash of alcohol, from above downwards, must be applied without disturbing the spectrum, or in any way shaking the apparatus. The superfluous alcohol will hardly run off when the phenomena of the thermic spectrum will begin to appear in all their characters; at first, faintly, and as it were, sketched in by a dimness and dulness of the otherwise shining and reflecting surface of the wetted paper; but this is speedily exchanged for a perfect whiteness, marking, by a clear and sharp outline, the lateral extent of the calorific rays, and by due gradations of intensity, in a longitudinal direction, their law or scale of distribution, both within and without the luminous spectrum.'

"By this method it is proved that calorific rays exists most extensively, unassociated with light."

The chemical action of the sun's rays next receives attention. After stating that sun-drawn pictures are the result of "radiations which have no luminous power" or calorific principle, Mr. Hunt directs attention to the following "fundamental experiment;—"

The prismatic spectrum, as alredy described, with its chromatic bands, is made to fall upon a screen covered with chloride of silver. The paper spread with this salt is perfectly white, but if exposed for a few minutes to sunshine it is changed to a deep chocolate color, which gradually passes on to an olive-brown. We have before assumed that our little flame-like band of colored light is an inch in length; we will preserve it the same in this experiment. Under the influence of the spectrum the white paper begins to darken, but not where there is the most *light*. The change first appears upon that part on which the blue and indigo rays fall, and where, within the spectrum, there is the *least light*, there is the greatest chemical action. In the violet ray the action is not quite so intense, and in this ray there is a little increase of light, from the blending of the secondary red ray with the blue. If the experiment is very carefully tried, a slight line remains unchanged under that spot on which the *lavender* rays fall, but beyond this point, where there is no light to be detected, chemical action progresses with great uniformity over a space equal to three-quarters of an inch or more. At the other end of the spectrum the result is different; from the blue ray down through the green the paper darkens, but the darkening regularly diminishes, until at the edge of the yellow ray, which is the maximum of luminous power, it is sharply stopped; and during a prolonged exposure under the greatest intensity of solar illumination, the space covered by the yellow band is preserved unchanged. In the orange ray, chemical action sometimes but not always, begins again; and through the space occupied by the ordinary red ray, a small change of color (frequently to a red) takes place, but over the space occupied by the *crimson*, or extreme *red ray*, not the slightest evidence of chemical action is to be detected. While these changes are going on, the diffused light which always accompanies the spectrum is slowly altering the color of the whole of the prepared surface; but upon examining it, two spaces will be found preserved from this influence, and these will exactly correspond with those points where light and heat are at their maximum intensity.

"The chemical action appears most energetic upon the space marked by the blue rays. Sir John Herschel, by an arrangement of two prisms, threw the yellow rays of one upon the blue rays of another, and the result was, the entire suspension of the actinic energy of the rays of this part—paper spread over with chloride of silver remaining unchanged under the combined actions of these radiations. An experiment of Mr. Robert Hunt's appears, however, to be still more conclusive. Glass stained a pale yellow by oxide of silver, has the power of stopping the actinic principle, as will presently be more fully explained. A piece of this glass was interposed between the prism and the screen; a slight alteration was produced in the blended bands of color, but the primary rays, red, yellow, and blue, were well defined. These were allowed to fall upon a piece of paper, prepared in such a manner as to be very susceptible of chemical change. No alteration, however, took place. A mirror was now adjusted at such an angle that a full flood of sunshine was reflected upon the paper, the consequence being that it darkened to a deep brown, in a few seconds, over evey part of the paper excepting the line upon which the *luminous spectrum* fell; this was preserved white and unchanged, throughout its entire length. The blue rays have been commonly spoken of in chemical treatises as peculiarly the chemical rays, but in the above experiment we have them existing without the power of producing decomposition."—*Robert Hunt, in the British Quarterly Review*, No. *XXV.*

From the Liverpool Photographic Journal.

ALBUMENIZED GLASS.

BY M. E. BACOT.

M. Bacot is convinced that any one who will follow his directions may most certainly obtain a fine negative upon every plate used, and although the process does not possess the rapidity of collodion, a portrait has been obtained by it in the shade in from 30 to 45 seconds, using a whole plate apparatus of Chevalier's construction. M. Regnault has already presented to the Academy of Sciences at Paris instantaneous pictures of the waves of the sea also obtained by this method.

The first important thing is the cleaning of the glasses. The plates should be finished by rubbing them over with alcohol applied by an old linen cloth, then, by means of a large and very clean camel hair brush, all dust and fibres are removed: the room in which this operation is carried on should be well cleaned out before-hand, and all currents of air avoided, for every dust-spot will cause a stain. Take the whites of 6 eggs freed from the germ, and put them in a large basin; then into a porcelain (or earthen ware) pipkin; put of

Distilled water..................	45	grammes*
Dextrine.........................	9	"
Iodide of potassium..............	3	"
Bromide of potassium.............	5	"

Dissolve the dextrine by the heat of a lamp remove the vessel, and add the iodide and bromide of potassium; let the mixture cool a little, and then strain it into the white of egg, beating the whole into froth: in twelve hours afterwards, the albumen will re-liquify and is ready for use. To apply it to the glass, have fixed, perfectly level, a piece of board smaller than the glass; now remove all dust by means of the brush, and place the glass on the levelled board: then pour upon the centre of the glass, the albumen mixture; (from Mr. Crookes's tube, pour just enough to cover the glass, for if more be poured, it will, much of it, be lost, and by a little practice the right quantity may be applied. Should the albumen not spread evenly, move the plate to and fro, and finish by guiding the fluid carefully with a piece of paper; let any excess be dripped away at the four corners successively, taking care that any back flow shall be equalized in the centre of the plate; place the plate on a level board to dry free from dust. When dry, put the plates in a box to preserve them till wanted. Just before making the plate sensitive, (we detest the word *sensitizing*,) submit the albumenized glass to the vapor of iodine until it is of a fine golden yellow color, then plunge it, in a darkened room, into aceto-nitrate of silver thus composed:

Distilled water..................	280	grammes
Nitrate of silver................	32	"
Glacial acetic acid..............	80	"

After two minutes of immersion the glass is withdrawn and perfectly washed in distilled water; if it is to be used dry, the water must be changed two or three times. After the exposure in the camera, warm gently the following mixture made in sufficient quantity to cover the plate when placed in a dish:—

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* Most of our readers know that the gramme is about 15½ grains English, the decigramme, of course, being the 1-10th of a gramme.

Distilled water	400	grammes
Gallic acid	7	"
Acetate of lime	3	"

Pour the warm liquid into the dish, and plunge into it the plate, and as soon as all is cool, add a few drops of aceto-nitrate made with

Distilled water	100	grammes
Nitrate of silver	6	"
Acetic acid	20	"

When the picture is well developed, wash and fix in a solution containing ten per cent. of hyposulphite of soda; again wash and leave to dry, by placing the plate upon *one* of its angles.

By this process the picture of a monument was taken with a half-plate apparatus of Chevalier in from 12 to 15 seconds. In using 50 plates, whether dry for views or damp for portraits, 45 may be counted upon as successful; indeed, generally, the only failure that arises is from mistaking the time of exposure.

PAINTING PHOTOGRAPHS.

Baltimore, Md., July 1st, 1857.

Friend Snelling,—I have a valuable receipt for preparing photographs for painting on, which should be given to your readers. First, after the photograph is pasted down to bristol-board or canvas, I then dry it. Give it a coating of shellac varnish, made out of light *shellac* and *alcohol* dissolved. Almost as soon as it is applied it will dry, and you can paint on it with the greatest ease; the shellac will bear out the color while painting; and at the second painting the next day, all your color will be dried in, so that by rubbing a little boiled oil over the surface enough to moisten it, you can finish your picture immediately; I use nothing else, and have found it better than any thing in use. The greatest difficulty existing among artists is, they want to improve too much on the photograph, and when you do that you are always liable to spoil the likeness. You can heap up the paint in the high lights but leave the shadows transparent, and you will always insure a strong likeness. To paint a good photograph is not much art, but to paint a bad one up requires no little effort on the part of the artist. There always will be a great scarcity of artists from the simple reason, that no painter likes to be confined to another's drawing. But there is the great beauty of photography. You not only get by the camera a perfect picture on canvas or paper, but after that, you have the artist to color it; and if it is done properly, no more perfect likenesses can be secured. There you have the advantage of both camera and artist. There are many things in its favor also—the rapidity by which it is accomplished. Many a time do we take a sitter one day and have a life-size bust portrait finished the next night. This may seem strange; but 'tis true, and occurs every week. But I should as an artist prefer always a good plain photograph to a badly painted one. I will continue my articles on painting in your next number.

Respectfully yours, J. R. J.

BACKING AND TRANSFERRING PHOTOGRAPHIC PICTURES.

From the *Repertory of Patent Inventions* we learn that Mr. Claude Langlois has a patent for the following process:—"I take first a negative picture in the ordinary way on glass made on collodion, and fixed in the ordinary manner, the light of a lamp, however, being used as giving more uniform results than day-light. To back this picture plaster of Paris is used, mixed into a paste, just such as will flow easily, and poured on to the collodion surface of the plate." The patentee continues, "over the plaster I apply a piece of muslin, or other open fabric, and then pour on more plaster, and so on until enough has been put on to form the thickness of back required. When I wish to remove the glass from the picture and to leave it on the surface of the plaster, I coat it with a thin solution of gum, which I allow to dry on, and then, when the picture has been printed and backed, I soak it in warm water, which dissolves the gum, and leaves the picture on the plaster. When dry the picture has a shining appearance, arising from the presence of the collodion, and to remove this I wash the surface with pure ether." To render the picture more suitable for coloring, the plaster is saturated with spermaceti or wax, the picture being allowed to remain until it is nearly soaked through to the surface. To strengthen the plaster it is cemented by shellac or otherwise to a block of metal, mill-board, or other suitable material.

From the Liverpool Photographic Journal.

RELATIONS OF SCIENCE TO ART.

OPTICAL ATMOSPHERIC AND PHOTOGRAPHIC INQUIRY.

The true relations of photography to vision and to art-delineation are not generally so well understood as they deserve to be. Artist-readers who are photographers, and moreover, close observers of atmospheric phenomena, will like to have their attention called to the inquiry from a correspondent in *Notes and Queries*, who signs himself "Henri." He gives the above triple title to his inquiry, because:—"with reference to the first two mentioned, there are differences of opinion as to whether the one or the other be the cause of a certain phenomenon between myself and a friend; and with regard to the last, because seeing a photographic print, the subject was started between us. The photograph in question was a very beautiful one of Salisbury Cathedral; the exterior taken from some little distance, and, of course, giving the whole building. It was noticed by my friend that the upper part of the spire was darker than the lower, and he raised this query, 'whether it was caused by an optical; or an atmospheric effect? I said optical; he said atmospheric; and an appeal was made to two or three gentlemen present, one of whom, by the way, was a Cambridge wrangler, and had, I presume, made optics his study; but they all, I think, appeared to side with my friend, that the *atmosphere* was mainly the cause of the phenomenon. I still maintained my opinion, and mentioned as my authority, Sir Charles Bell, who wrote on the subject in one of the Bridgewater Treatises, I believe. As well as I can remember Sir Charles Bell said the effect was caused by a great portion of the retina of the eye being opposed to the light from the sky, and that when the eye is moved to look at particular portions of the steeple, the reflected light from the steeple falls upon the retina where it (the retina) is exhausted by the direct and more powerful light from the sky. He then went on to say, that if we look at the steeple and drop the eye to examine the lower portion of it, the upper part infallibly is darker; and this, while writing, I prove to be correct, for I am looking at the spire of St. Michael's Church in this city. In fact, from what Sir Charles Bell says, I have always considered it an optical effect, and caused by an exhaustion of the sensibility of the nerve of the eye and not by contrast. I then urged that I believed a camera as used by photographers was a kind of artificial eye, (errors arise from this parallel), and probably would give the same effect, or, I should say, receive the same as the natural eye. My friend still held his opinion that it is an atmospheric effect alone, and he thought it arose from the atmosphere being more opaque, as it gets higher from the earth. Certainly a camera cannot have the movement of the natural eye, and from Sir Charles Bell's description it appears the effect is partly caused by the eye moving from part to part of the object."

To this H. C. K., ——Rectory, Hereford, replies that it is well known that a spire is ordinarily less illumined towards its upper portion than at its middle and base; and that it is not an optical illusion, nor due to atmospheric absorption; and states that "the lower two-thirds of the spire or tower will ordinarily be decidedly in light, and the upper third as decidedly in shadow;" and in conclusion writes:—"The true cause of the phenomenon is this. It will be found that it is only on a bright or at least a moderately bright day that it is seen at all. On a dark day the tower will present a uniform tint, on a bright day, the light which illumines the tower will of course not be diffused light alone, but will proceed from the neighborhood of the sun, and therefore will strike the tower, and be reflected thence to the eye of the spectator *at a particular angle*, which angle will of course vary with the hour of the day. A little consideration will show that at the elevation from which a tower or spire is ordinarily seen, the full light which impinges on the upper part will be reflected over the head of the spectator, and cannot therefore reach his eye; while for the same simple reason if the eye, preserving the same horizontal distance from the lower as before, be elevated so as to view it a little below the level of the top, the upper two-thirds will be in full light and the lower one-third in comparative shadow."

We shall be glad if the insertion of this leads to further experiments and observations.

From the London Art-Journal.

POETICAL AND ARTISTIC CONCEPTIONS OF DEATH.

The vrrious forms under which Death has been represented in the mythology of different countries, in poetry and popular superstition, afford a subject of highly-interesting comparison and research—one branch of psycological investigation. In the earliest mythology of Northern Europe, as well as of Greece, the extinction of life, the transition of the spirit from this world to another, was assigned to the guardianship of a supernatural power—one of the inferior class of deities. The most poetical representative of these beings was the goddess Hali, Halja, Hellia, or Hel, as she is variously called, whose character and offices first invite our attention.

The goddess Hel, according to the Eddaic poems, was the daughter of Loki, and a giantess. She is represented as either black, or half black and half human-colored, and her dwelling is in the depths of the earth, under the root of the celebrated tree Yggdrasil, in the cold, cheerless, and shadowy realm of Niflheim; there she holds her court; her dish is named *hungr*, and her knife *sultr*—words of synonymous import, expressing in the most poetical manner her insatiable appetite, a feature which we shall afterwards observe under various forms. This goddess was originally no destructive power; she was not regarded as the agent of killing and her office was merely to preside over her abode in the lower world, where she received the spirits of the departed; she neither goes herself, nor sends any messenger to fetch them. The dead are left to enter on the long and dark journey by themselves, and they take with them all the various necessaries for travelling, such as shoes, money, servants, horses, clothes, &. ; some ride, others drive; and large troops of souls journey in company—"*farra till Heljar*," or "travel to Hàljar." Properly speaking, only those who die of old age, or from natural causes, are received by Halja—all who are fortunate enough to be slain in battle being transported to Valhalla (the hall of Odinn), by the Wælkyrian. In two of the finest songs in the Edda we have a description of this journey to the nether world.

Dr. Grimm notices that, in some of the popular Danish legends, Hel is represented as riding about on a three-legged horse, to announce pestilence and sickness; or, according to a more ancient interpretation, to collect and carry off the dead who, had fallen to her lot; a chariot was afterwards added, in which she drove about the country. This view is evidently of a popular character, and the offices of the goddess are here much less dignified than those ascribed to her in the Edda, which reminds us of the Mater Tellus, or Mater Terra (Mother Earth) of the Italian mothology, who received the dead into her bosom—a beautiful and poetical idea, which has been perpetuated down to the present day.*

Besides Halja, there were other deities who had power over the souls of the departed, one of the principal of whom was Rán, the sea-goddess, who is described as drawing the bodies of all who have been drowned into her abode with a *net*: her name signifies to seize, or carry off. There appears to be a tendency common to the mythologies of most countries, to multiply in the progress of time the objects of worship and veneration. The simplest form of faith is generally the most ancient, and the present subject affords an illustration of this remark. It moreover deserves notice that the further we retrace the monuments of Northern mythology, the more refined benign, and divine does the character of Halja appear: none of the ideas of cruelty, sadness, or terror which arose in after ages attach to her. She is one of the oldest representatives of Paganism, and Grimm notices her correspondence with a Hindoo goddess, who is also represented black, and has power over the souls of the dead. It is interesting to observe a trace of this ancient belief handed down, like so many similar ones, in the popular stories of Germany, where a representative of Halja appears in the form of Mother Holle, who figures repeatedly as a kind of witch.

The goddess Hel, or Halja, has a representative in the Hades, or Pluto, of the Greeks the Orcus, Ditis, or Dis, of the old Latin religion—the deity presiding over Erebos. It is remarkable that the terms Hades and Orcus were, by the ancient Greek and Latin writers used only to denote persons, deities; and that the application of them to the idea of a *place* did not come into use until a comparatively late period. In the New Testament, also, Hades occurs several times in this sense. But another curious fact is, that our own word "hell" is merely a similar transformation of the Pagan goddess who presided over the dead into the abode of the dead itself. The place of Punishment, in the Northern mythology, filled with poisonous serpents, darkness, cold, and gloom, was "Nastrond," answering to our idea of hell. Christianity admitted no goddess of death, and in the conception of a hideous place of punishment, the Anglo-Saxons united the realm of Hel with Nastrond. "The prevailing idea in the infernal regions of the Teuton," observes Mr. Kemble, "is cold and gloom. Fire was too cheerful in the North to be sufficiently an object of terror: it appeared otherwise in the East, where coolness is the greatest of luxuries. The poisonous snakes which, waking or sleeping, seem ever to have haunted the Anglo-Saxon, formed a convenient point of junction between his own traditional hell, and that which he heard in quotations from the works, of the Fathers; and to these and their influence alone can it be attributed, when we find flames, and sulphur, and all the hideous apparatus of Judaic tradition adopted by him. In this fact seems to lie a very important mark of ancient heathendom." Mr. Kemble quotes the following description of hell from the Salomon and Saturn:" on the defeat of the rebel angels, it is said that God—

"For them made hell,
A dwelling deadly cold,
With winter covered:
Water he sent in,
And snake-dwellings.
Many a foul beast,
With horns of iron;
Bloody eagles,
And pale adders;
Thirst and hunger,
And fierce conflict,
Mighty terror,
Joylessness!" †

The converted heathens readily applied the name "hell" to the under world, or receptacle of the wicked after death, and this notion has continued from the earliest times to the present day.

In these various characters, however, we observe no personification of the idea of Death, but the genuine pagan notion of a deity presiding over the dead; and similarly in this change of a person into a place, we have merely the removal of the heathen deity, and the substitution of a figurative place—an abode; and, as we shall see at a still later period, of the state or condition of the dead.

A remarkable feature in the notion entertained by the ancients respecting Death is, as we have remarked, that she is not regarded in the light of a destroying being, but simply as the messenger of a god, whose office it was to convey to him the souls of the departed. The destructive powers were distinct—sickness, famine, and the sword. This character, or form of Death, as a messenger or angel, pervades the Northern mythology; but although of true Pagan origin, it reappears both in the Jewish and Christian Scriptures, as, for instance, in the angels who carried the beggar into Abraham's bosom (Luke xvi. 22). Under the Christian form, the office of messenger became twofold,—that of the angels, who transported the souls of the pious, and that of the devils, who carried off those of the wicked. This idea, it is scarcely necessary to observe, furnished a rich and favorite subject to the early artists both of Italy and Germany.

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* Mata Terra was represented as a goddess drawn by lions. See Macrobius, lib. i. ch. 21.

† Sal. Sat. p. 173.

In the early Greeks poets—Hesiod and Homer—Thanatos, or Death, is represented as the twin-brother of Sleep, the sons of Night, whose abode is in the under world. But here Thanatos appears as a messenger, as for instance in the Iliad, xvi. 676, &c., where, after Sarpedon has fallen by the hands of Patroclus, Apollo washes his body in the stream, anoints it with ambrosia, and clothing it in ambrosial garments, commits it to the twin-brothers Sleep and Death, to convey to Lycia, to be interred there by his friends. This office of Thanatos therefore corresponds to that we have remarked in the Northern mythology; and with it we must also connect the office of the Wælkyrian, the female messengers, whom Odinn sends to fetch and convey to his heaven the spirits of those heroes who were slain in battle.

In one of the fables of Æsop, Thanatos, or Death, who generally appears as a kind of protecting Genius, is invoked by the old man to relieve him from his toils. And it may be observed that, like all the spirits of the other world, Thanatos is always ready and at hand to obey a summon.

We have seen that, in the Northern mythology, both Halja and the Wælkyrian* are represented in the female charater. The Greeks, it is true, assigned to Hades a queen consort, Persephone; but she was a mere adjunct to the officiating monarch; and in the old Latin mythology she has no counterpart. In the works of Art too ancient Rome, Grimm observes, "Death is never represented as female, although we may observe the Latin name *Mors* is feminine." In the Grecian mythology, Hermes performed the office of conducting the spirits of the dead to the realm of Hades; although, Thanatos also officiates as this messenger. In Euripides' drama of "Alcestis," for instance, Thanatos is introduced as a priest or messenger of Hades coming to fetch away the heroine. Mr. Keightley remarks, that we here "meets the first mention of a remarkable notion of the Greeks—the dead seem to have been regarded in the light of victims offered to Hades; and as it was the custom, in commencing a sacrifice, to pluck some hairs from the victim, and burn them on the altar, so Death is here represented as coming to cut off a lock of the hair of Alcestis." On a vase depicted in Dennis's "Etruria," is a representation of the so-called parting of Admetos and Alcestis, with two hideous figures, one on each side, armed the one with a serpent, and the other with a knife: these appear to typify Death.

It is doubful whether the Etruscan Mantus may be regarded as a representation of Hades, or of Death. On an Etruscan vase we have seen him depicted armed with his hammer, with large wings, and with *talaria*, or wings, on his heels; he is bald, with the exception of a tuft of hair on his forehead. We have been struck accidentally by the curious resemblance between this figure and that of Satan, in Giotto's "Life of Job," in the Campo Santo, who has similar wings, the tuft of hair, and what appear to be *talaria*. If the figure on the vase to which we refer be a representation of Death, the introduction of the hammer is curious. Sin (or Satan) and Death have frequently been confounded in pictorial representation; and the Devil, as Grimm remarks, was from early times compared to two implements—the hammer, and the bolt or bar. The former instrument is early connected with Thorr's celebrated hammer, and Grimm quotes many instances where the early Fathers of the Church (Jerome, Gregory, &c.) use the name of *Malleus* and *Vectis* for the Devil.

By the later Greek and Latin poets, Death is depicted as a sad and terrific being although the artists of Greece gave him a more pleasing aspect—frequently in the character of Genii holding an inverted torch, or slumbering youths; but these are rather to be classed with symbolic types than personifications, which we purpose here chiefly to consider. Many, indeed, are the curious symbolical notions connected with Death which have appeared among various peoples and in different ages. The celebrated Mastersinger Hans Sachs represents Death as pushing away the stool from under a person, and letting him fall. Another very common figure is, that of Death extinguishing the light (of life), which appears in Germany as well as in the Grecian Genius with an inverted torch. The mild and beneficient character of Death, early prevalent in Germany is exemplified in the notion of his being an intimate companion and friend. A pretty legend tells of a subterraean cavern, in which burned thousands and thousands of lights, in endless rows: these are the lives of men,—some shining in large tapers, and others burnt down to a small end, but there is alway danger of a long taper falling or being overturned. In the same fable, it is said that Death once stood godfather to a poor man, whom he gifted with the power of seeing him bodily when he approached a sick person, and of knowing, from his position, whether the patient would recover or die. The godson became a doctor, and grew rich. When Death appeared standing at the head of a sick person's bed, the patient was his; but if Death stood at the foot of the bed, the sick man recovered. Once, however, the doctor turned the body of a sick man round, and outwitted Death, who, to revenge himself, at last uspet, as if accidentally, the light of his godson.

A beautiful old Northern Saga represents Death sitting before the door, waiting till the souls of the inmates go out, to carry them off to the other word. Another conception of frequent occurrence is, that the souls of the dead are led away by Death bound as prisoners—a notion which agrees with the Hindoo mythology.

The office of a friendly messenger, which was originally assigned to Death in the Northern mythology, became gradually converted into one of a severe and cruel nature. He is represented under various characters (such as a thief, a fowler, a fisherman, &c.), as an enemy who seeks to *steal* away the souls of the dead, and who wrestles with mortals, or rather with the principle of life, which idea lies at the bottom of this fiction. In this strife Death was represented as the leader of a large host, which is constantly increasing.

In Germany, mediæval conceptions of Death figured a greedy and insatiable *Holle*—an *Orcus esuriens*, or devouring ogre; and she is represented with a yawning maw, like a ravenous wolf. In the old poems, there is frequent mention of the abyss and the gates of Hel, Hölle: and two passages in the Bible refer to similar images:—"Hell and destruction are never full" (Prov. xxvii. 20); and, Isa. v. 14—"Hell hath enlarged herself, and opened her mouth without measure."

"As far as we can judge," says Mr. Kemble, "from the descriptions which survive, the Anglo-Saxons represented Hell as a close and covered dwelling—a prison duly secured by locks, bolts, and bars. But the popular fancy had probably even then adopted the notion of a monstrous beast, whose *mouth* was the entrance to the place of torment. From this peculiar feature, however, we may believe that a resembrance still lurked among our fore-fathers of the gigantic or Titanic character of the ancient goddess, who, in Norse mythology, was Loki's daughter."

To recur to the goddess Hel: in the beautiful legend of Baldr, whose death afflicted all the gods, we find Odinn descending to the abode of Hel, in hopes of persuading the goddess of the dead to relinquish her prey. "He was successfult, and returned with the joyful tidings that Baldr would be restored to the gods, if all created Nature would weep for him. All nature did weep for the loss of the god of beauty, save one old crone. When called upon to do her part in his restoration, she answered, 'What have the gods done for me that I should weep for Baldr?

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* Saxo Grammaticus calls the Wælkyrian *feminæ nymphæ sylvestres.*

Let Hel keep her dead!' Thus Baldr's fate was sealed; his throne was placed in the shadowy realm of Hel, and weeping virgins spread the eternal pall that was to give dreary honor to the god of light in the cold kingdom of darkness and the invisible."[*]

One peculiar representation of Death we must not omit to notice—that of a figure riding on horse-back. The description of Death on the Pale Horse, in the Revelations, will naturally occur to the reader; but Dr. Grimm traces this peculiarity to a heathen origin, and cites references to the superstition in popular sayings and tradition: he reminds us also that the Wælkyrian rode on horseback, and that Odinn rides, whilst Thorr goes on on foot or drives. In some Danish legends given by Thiele, when a person recovers from sickness he says, "*Jeg gav Doden en skiappe havre,*" i.e., "I gave Death a bushel of oats" (for his horse). In the "Dance of Death," preserved at Lubeck, Death is depicted riding on a lion. In connection with this conception of Death on Horseback, we may, by the way, remind the reader of Bürger's celebrated ballad of "Lenore," where Death carries her off in the form of her lover.

From the transitoriness of life being likened in the Scriptures to grass and flowers, Death was naturally converted into a mower, and in this character the scythe, knife, and sickle, are assigned to him. A fine old German song says—

"Ist ein Schnitter heisst der Tod,
Hat Gewalt vom höchsten Gott;
Heut wetzt er das Messer,
Es schneidt schon viel besser—
Hüte dich, schönes Blümelein!"

This character of Death corresponds with that of Time; but it does not belong to the earliest class of personifications.

In the poetical conceptions prevalent among the ancients of the strife of Summer and Winter, the latter is often represented by Death, with which many curious popular superstitions and customs in Germany are connected.

In the Hindoo theology we meet with a direct personification of Death—or the god of Death—Yumu, a remarkable character. An account of Yumu, is given in one of the Vedas (Kut'h-opunishud), of which the following is an outline. A youth named Nuchiketa, having offended his father, the latter surrendered him to Yumu. The youth went to the dwelling of Yumu, who was absent, and Nuchiketa remained there three days and nights without food. When Yumu returns, he is addressed by *his family* in these words—"A Brahmun entering a house as a guest is like fire; good householders, therefore extinguish his anger by offering him water, a seat, and food. Do thou, O Yumu! present him water." Yumu, being *thus admonished by his family*, approached Nuchiteka, and said to him, "As thou, O Brahum, hast lived in my house a revered guest, for the space of three days and nights without food, I offer thee reverence in atonement, so that bliss may attend me: ask three favors of me as a recompense for what thou hast suffered while dwelling in my house." Nuchiketa then made this as his first request, saying, "Let, O Yumu! my fathers apprehensions of my death, be removed, and let him recognise *me on my return*, after having been set free by thee. This is the first of three favors which I ask of thee."

This Yumu promised to grant. Nuchiteka then made his second request.

"In heaven, where there is no fear whatsoever, and where even thou, O Yumu! *canst not always exercise thy authority*, and where therefore none dread thy power, the soul unmolested by sorrow enjoys gratification. As thou, O Yumu! dost possess knowledge respecting fire, which is the means of attaining heaven, do thou instruct me in that knowledge."

This Yumu promises to grant. Then Nuchiketa asks, as his third request, Yumu to explain to him the question respecting the nature of the soul after man's peath. Yumu replies, "Even gods have doubted and disputed on this subject, which can never be thoroughly comprehended. Ask, O Nuchiketa! another favor instead of this." Yumu then promises to grant him every kind of worldly power and enjoyment; but Nuchiketa refuses all this; and persists in his request, which Yumu, finding him worthy of such knowledge, at length grants; after which, "having thus acquired this divine doctrine, imparted by the god of death, with everything belonging to it, Nuchiketa, freed from the consequences of good or evil acts, and from mortality, was absorbed into God; and whatever person also can acquire that knowledge, shall obtain absorption."[†]

In conclusion of the above brief remarks on Death, we may note what appears to be the natural sequence of the popular poetical conception—first the earliest and rudest form—that of simple personification; the second, or artistic form, that of symbols, embodying the poetry of Art; and thirdly, the latest form, that of emblem. We cannot pass unnoticed, the grandest personifications of Death met with any poet—our own Milton. The wonderful descriptions of Sin, and her offspring Death, given in the "Paradise Lost," are too numerous to be more than alluded to here. Milton has exercised in these personifications his greatest powers of imagery, and the reader will find an interest in studying them again, in connection with the subject of this article. How grand is the picture of Sin and Death sitting guardians at the portals of Hell!—

"Before the gates there sat,
On either side, a formidable shape:
The one seem'd woman to the waist, and fair:
But ended foul, in many a scaly fold,
Voluminous and vast," &c.

Then the magnificent description of Death:—

"The other shape,
If shape it might be call'd that shape had none
Distinguishable in member, joint, or limb;
Or substance might be call'd that shadow seem'd,
For each seem'd either; black it stood as night,
Fierce as ten Furies, terrible as Hell,
And shook a dreadful dart; what seem'd his head
The likeness of a kingly crown had on."

Again, where Sin describes the birth of Death:—

"But he, my inbred enemy,
Forth issued, brandishing his fatal dart,
Made to destroy! I fled, and cried out *Death!*
Hell trembled at the hideous name and sigh'd
From all her caves, and back resounded *Death!*"

In the tenth book are also given other pictures of these wonderful creations of the poet, which embody many of the figures prevalent in the middle ages, to which we have alluded, and which are here grandly illustrated.

Symbolic allusions to Death, under various forms, were very common in the early works of Art in Greece and Rome; direct personification was rarely met with, and we shall here allude to one only, of an interesting character. Petrarch, in his poem, "The Triumph of Death," gives a fine personification of Death, under the figure of an old woman. The whole poem is a perfect picture, and we cannot resist translating a few of the introductory verses. Madonna Laura is returning from her victory over Love (described in the preceding poem):—

"This beautiful and ever-glorious fair,
A naked spirit now, and loosed from earth.
That erst the early prop of virtue was,
Returned now with honor from the strife,
Joyful, for she had tamed the powerful foe
Who conquors with his arts the world entire.
Nor other arms had she than a chaste heart,
With beauteous features and with sorrowing thoughts,
With wise discourse, the friend of honesty.

* * * * * & * *

The beauteous dame, and that fair company.
Her chosen band, from noble victory
Returning, joined in a goodly troop,
Bright stars they seem'd, and in the midst a sun,
That lightened all, yet dazzled not the sight,
With roses and with violets encrown'd;
As gentle heart draws honor to itself,
So came a gleeful company along."

The reader will mark the abrupt transition, and the manner in which this introduction deepens by contrast the color of the following pictures:—

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[*] See Kemble's "Saxons in England," vol. i. p. 368.

[*] Ramohum Roy's translation of the "Kut'h-öpunishud of the Ujoor-Ved.

"When sudden I beheld a banner dark,
A female form, rolled up in sable vest,
Move onward with a storm—such that I doubt
Flegra e'er saw, time was the Giant's war."

Again, the fine description of the realm of Death:—

"She spake, and lo! in its wide circuit round,
The plain was all encompass'd thick with dead,
That neither prose nor verse can comprehend.

* * * * * * *

There too were those who were accounted blest,
Pontiffs and reigning princes, emperors:
Now are they naked, poor, and medicant."

We quote these lines in connection with a celebrated work of Art borrowed from them—Orcagna's fresco of the "Triumph of Death," in the Campo Santo at Pisa. The artist unquestionably took his theme from Petrarch, and indeed has followed his description so closely as to overstep the just limits of his art—a fault pardonable in an age when the *spirit* of poetry was refused alike into the different branches of Art, and the laws which should regulate its *form* or expression were camparatively little studied or understood. Orcagna's hideous figure of Death, with streaming hair, and claws, bat's wings and wire-woven vest, conveys nothing but a burlesque of the picture which the poets's few but forcible lines suggest.

The most direst personification of Death remains to be noticed—that class of pictorial representation known by the of the "Dance of Death." The subject is highly interesting, and we shall probably treat of it in a future article, to which the present one may form an appropriate introduction.

For the Photographic & Fine Art Journal.

BALTIMORE GALLERIES OF ART.

Friend Snelling:—I promised to give you a short criticism on the different galleries of Baltimore; and in doing so I hope none of your readers will think me partial to any particular operator. In these few remarks I will not consume more of your valuable Journal, than is just necessary to describe, in short, all of the principal galleries in the city.

First, we'll take a look into Mr. Clark's rooms on Baltimore street near the Maryland Institute. Mr. C makes nothing but Ambrotypes, and although some of them are good in chemical effect they are bad in position. Mr. C. takes his pictures on a single glass. I would suggest he should study his positions more, and his pictures will compare with some of the best of operators.

Mr. Israel takes Ambrotypes and Photographs. He has a good gallery, and works every thing very clear. His pictures are generally good in position and effect; his ambrotypes are better than his photographs. Mr. I. is a practical chemist and therefore his knowledge is superior to others, whose ability is confined to the chemistry of photography. He is producing some rare pictures in photography. He has a good operating room, probably the best in Baltimore, and has a distance of 60 feet if necessary, to take groups. He does his own operating and works with great success. Mr. I. deserves to be well patronized.

Mr. P. L. Perkins. This gentleman has a gallery a few doors above Mr. Israel's. His Ambrotypes took the premium at the Maryland Institute last fall. That fact does not altogether entitle them to be the best pictures. But Mr. P. has an operator that in positions is very good; he places the sitter always in a graceful and easy position; and you can generally get a good ambrotype here. Mr. P. makes some photographs, but they fail; the high lights are flat and in all the picture has a lead colored appearance. The effect is not good; yet Mr. Cowell, the operator understands and could make good photographs, but he merely works for a salary without any inducements being held out to him to make photographs, consequently Mr. Perkins fails to produce any thing but ambrotypes, and they are very good. Mr. P. makes bust portraits in oil, Mr. Wilson is the artist who paints for him and also a Mr. Clark—both these gentlemen are clever artists. But I don't wish to go into a criticism of the artists in this article. Mr. P. has done a good business heretofore in the ambrotype line, but he falls far short in his photographs and oil pictures.

Mr. Pollock has probably one of the most elegant galleries in Baltimore. But Mr. Pollock belongs to the old school and has very little flattery, and often loses a picture where he might have secured one by a little soft talk. He takes daguerreotypes, ambrotypes and photographs. I cannot say that his pictures are good, although he makes now and then a very good one. But they are all too flat, and no depth of light and shade, no strength whatever; all the strength is sacrificed to make a picture that will sell. Mr. Pollock has the most complete operating and chemical rooms in Baltimore; he does his own operating: business is dull. Mr. P. takes life-size photographs and has them painted in oil; none of his pictures are colored in water or pastel.

Mr. J. H. Whitehurst has his little old gallery working away at the same place; but he will shortly open a new one a few doors above his old one. Mr. W. takes ambrotypes and photographs, and has for years taken all the premiums in this branch of the profession, although Mr. W. don't know how to take an ambrotype. He has tried to secure the best operators at no little cost or expense. But he has failed for some time back to maintain that reputation, for the pictures taken now are of an inferior nature; as to photographs they are very flat, not good in position nor effect: but we may expect when he opens his new gallery we may expect to see what we shall see. We are sure Mr. W. will not fall short of securing the best artists that can be had, if not we will be sadly disappointed. As to who takes the best pictures of all that I have named, 'tis a difficult thing to say; all have their friends and followers, and they are all clever gentlemen and take good pictures; some take good pictures while another fails, but all of them take first class pictures at times. Each one has his failings. My remarks are general without selecting any one particular person.

I would suggest that if all of these operators studied positions and expressions more than they do, in nine times out of ten they will have a more pleasing and a better picture than they do, and they will be enabled to give more general satisfaction. The business is almost stagnant here during the summer months. All of these gentlemen I have named, except the first, take life-size photographs and have them painted in oil. And in a short time they will have in use each of them, one of Woodward's Solar Cemeras, which, in my humble judgment, I think one of the greatest inventions in photography that has been discovered, and bids fair to not only make fame but money for the inventor.

I have learned from Mr. W. that his orders for the Solar Camera are almost without number; I am heartily glad, for the poor artist and inventor should be rewarded; and in conclusion I can only wish him as well as all others artists, the greatest prosperity. Very truly yours, J. R. J.

From the Liverpool Photographic Journal.

PROTECTION OF PHOTOGRAPHS BY ENCAUSTIC PASTE.*

Mr. Belloc in his treatise remarks on the beauty which the positive print possesses while immersed in water, and which, as is well known, it loses considerably on drying. Varnishing, hot-pressing, and glazing by rollers are resorted to to restore the lost lustre and transparency, but varnish is generally too glittering in its result, and mechanical means are not always at hand. The *encaustic* of M. Clausel is therefore, recommended as a substance which at once agreeably restores beauty to the proof, and aids in its preservation. It has been tried for several years and prints coated with it have remained unchanged, while others in the same portfolio not so coated, have became spotted or sensibly faded. The encaustic is composed of Ceylon elemi dissolved in the best oil of lavender, the addition of some oil of cloves completes the mixture. The proportions are not easily given, they are such as to yield a consistency resembling that of a firm pomade, which can yet easily be spread upon a paper surface, by means of the finger. It must be as firm as the manipulation during its use, admits of. Although the materials are costly the expense for each proof does not exceed a half-penny. To apply it, the proof must be mounted on cardboard, or if for an album strained while damp. When dry and tense, take the encaustic upon the finger, and spread it equally, so as just to cover the paper, and leave it to set for five or ten minutes, according to the temperature. Then rub the surface with a folded up pad of woolen, (merino stuff answers best); leave it for a short time to further set or harden; and again rub it. Finally, in a few moments, when more hardened, finish the polishing with a fresh piece of merino, moved briskly, in order to get a uniform gloss. A little extra pressure will remove any smears arising from the presence of an excess of the paste.—*Les Quatres Branches de la Photographe, par a Belloc. Paris.*

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* The fine pictures of M. M. Bisson are now sent out covered with an encaustic of the above nature.

From the Journal of the Pho. Soc.

FREE REVOLVER STAND.

Every photographer is aware that steadiness in the support of the camera is of the first importance; for otherwise, with anything but an absolutely instantaneous process, sharpness in the resulting picture would be unattainable. Of late years the researches of philosophers have given us great insight into some of the more recondite phænomena of motion, and their discoveries have now received a most important practical application. Every schoolboy must have noticed on taking up in his hand a spinning peg-top, *asleep*, how it remained entirely uninfluenced by the motion of the hand, pointing steadily upwards in apparent defiance of the law of gravitation, so long as the velocity kept near its maximum, and even when forcibly thrown out of the perpendicular, how it seemed to strive, with more or less success, to regain its apparent fixity; but who could have guessed that that toy, like Newton's mythical apple, was the familiar example of one of the grandest and most important laws by which the universe is held together,—that of the permanence of free axis of rotation; a law which keeps the pole of the earth, during its annual revolution round the sun, so steadily pointed towards one spot of the sky; the various forces which are continually pulling at it being merely able to produce the almost imperceptible motions of *precession* and *nutation.*

An instrument which has received the name of the Gyroscope, has been for some time known to scientific men, and has met with many applications, but none which at all approach in practical importance the admirable ingenious contrivance of Professor Piazzi Smyth, Astronomer Royal for Scotland. He has recently contributed a paper to the Society of Arts at Edinburgh, an abstract of which has been copied into the December and April Numbers of the Monthly Notices of the Royal Astronomical Society, wherein is described a method which he has successfully adopted for taking astronomical observation at sea, by supporting the telescope on a "Free-Revolver Stand." It is at once evident that any mechanical contrivance which will cause an object in the field of view of an astronomical telescope to "remain there, absolutely uninfluenced by the rolling and pitching of the yacht," and "bisected on the wire sufficiently long for the captain, the first and second mates, and several of the sailors to look in and bear witness of the fact," will be quite steady enough to support a photographic camera during the time required to take a collodion picture of any object on shore; and this without the limitations as to size of picture or depth of focus, occasioned by the necessity which has hitherto existed of employing lenses of enormous aperture, as a few minutes in the time of exposure will now be unimportant.

The exact details of the mechanical contrivances of the "Free-Revolver Stand" will be found in the papers alluded to above, but the principle of the arrangement may be easily understood. A heavy wheel, with most of its weight situated towards the rim, as in a fly-wheel, is set spinning with a velocity of about 80 revolutions per second, and the frame supporting it is accurately balanced on gimbals, like a compass or chronometer. The spinner and its inner supporting frame (on which may be placed a small table), will now be found totally insensible to any movement which the outer frame may experience at right angles to the plane of rotation; and if this plane be in the first instance placed horizontally, "such table will then be entirely defended from all the possible angular movements of a ship; and a telescope once directed on a star, will keep it in the field without hand, though the ship may pitch and roll and yaw to any extent."

Professor Smyth does not rest satisfied with merely describing *how* such a long-desired consummation may be effected: the following deeply interesting account of the practical working of the instrument abundantly proves its efficacy; whilst the astonisement and wonder of those on board must have risen to such a height, that the final catastrophe would but seem an appropriate climax to the experiments.

"The telescope mounted was a small one, magnifying seven times, and having an eye-hole of one-eighth of an inch. The revolver was one foot in diameter, weighed 10 lbs., and was driven by two sets of wheel-work acting on either side of the spindle . . . . The sailors were called up to work the driving-wheels, and when they had got up about 80 revolutions per second* in the revolver, the wheels were withdrawn, the gimbal rings unclamped, and I had the satisfaction, for the first time that any one had had, of looking at sea through a telescope, steadied by the same mechanical efforts as that which preserves the constancy of the earth's axis in space. . . . . In order to perfect the balance of some parts of the machine, which had left it maker's shop rather unfinished, I kept the sailors for several days working the driving-wheels while I was experimenting; they labored at them with enthusiasm, indeed rather too much so; for one unfortunate evening, when the instrument was so nearly perfect that I hoped in the course of the night to essay the grand nautical problem of observing an eclipse of one of Jupiter's satellites, the sailors, impatient of the difficulty of getting up immediately the full speed, clapped on a rope to the handle of the driving-wheel, and pulled away in such style, that they twisted the strong steel driving-axle in two, and were themselves laid flat along the deck."

It is evident that this method of guarding a small platform (on which a camera may be placed equally well as a telescope, from all possible angular movements of its support, admits of very many applications; besides its value in time of war for obtaining large photographs† of marine fortifications, it might be used with advantage for obtaining bird's-eye views of towns or plains from a balloon. One other use (although scarcely photographic), which might be made of such a stand, was alluded to by the chairman of the society at which the paper was read:—if one of our fair countrywomen "had occasion to take a voyage in rough weather, she could not have a greater favor conferred upon her than a seat mounted as Professor Smyth has described; unmoved by the agitation of the waves, and in perfect repose amidst the fury of the tempest."

Vignettes may be produced by cutting out a circular or an oval aperture in card-board, and then placing this partial screen at a short distance from the glass of the copying frame, moving the frame round, occasionally, if it be lighted unequally. We have seen both vignettes and back-grounds produced, by skilful manipulation, with cut-out screens, cotton wool, and a large flat camel-hair bush; and have seen separate masks, prepared by an artistic hand, which could be used with different negatives.

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* Professor Smyth describes an arrangement by which such a velocity may be at once communicated to the very heavy wheels of his apparatus; it consists essentially of a small turbine driver fixed on the axis of one of the spinners and driven by a jet of steam.

† Mr. Elliott's well-known instantaneous views in the Baltic were too small and taken under too many disadvantages to be of real use, although of the greatest interest.

From the Liverpool Photographic Journal.

THE ATHENÆUM ON THE HALLOTYPE.

We quote the following letter *in extenso*, from the *Athenæum*, as it contains some good and useful suggestions. The idea of the band-lens, however, is not new, as we employed it at the Radcliffe Observatory nearly three years ago. We cannot either allow the stereoscope to be so entirely given to Sir D. Brewster as is here done; the first time Sir David's name appears, it evidently is an error for Professor Wheatstone's:—

"*Edinburgh.*

"As a photographic process, styled the 'Hallotype,' is now attracting public curiosity for its alleged stereoscopic effect, or approach to it, will you allow me in your columns to call attention to some other processes, by which such results may be, I believe, obtained in a much more perfect and convenient way. I have not, I confess, seen the 'Hallotypes,' and cannot, therefore, criticise their effect, but the contrivance does seem to me a rather clumsy and unscientific one. As far as I can discover, the pictures placed above one another are not over originally stereoscopic ones to begin with. The plans which I have proposed for obtaining an approach to stereoscopic effect are the following:—1. The printing of one positive from a pair of stereoscopic glass or paper negatives, placed the one above the other, or the printing from a negative which has been in the first instance itself printed from two stereoscopic positives, placed one above the other, all this being done in the pressure frame. 2. The taking in the camera of a single negative from two stereoscopic positives at once by an arrangement which will unite the two into one. This is accomplished by using a lens with the whole of its outer surface covered by a close-fitting cap, with the exception of two eye-holes, which are left at a convenient distance in a horizontal line. The combined picture may be softened down by a pencil, with or without colors; or we might, if wished, combine more than two into one by using more pictures and more eye-holes, or a separate lens with the axes suitably adjusted. 3. We may take our negative from Nature direct in the ordinary way, but with our lens blocked up, as in our last, with the exception of the two circular openings which represent our two eyes, and which give us, in our resulting negative, precisely the two pictures which would be seen by our two eyes combined into one picture. But as, though combined in a certain sense, they are not absolutely connected, except in one point, a little softening down may be desired, which may be effected either in the positive or in the negative, as wished. 4. We may work with a lens having its top and bottom portions blocked up in front, so as to prevent any of the rays from our object falling on them; the light being thus admitted only to a narrow horizontal band across it. By this we get the same two pictures as we do by the last arrangement from the two extremities of our horizontal belt; while the space between these extremities, by an infinite number and variety of intermediate pictures which it yields, serves to shade the two extreme ones imperceptibly into one. This last process is what I recommend; and though we may not get by it what I at first expected when I began to devote attention to the subject, namely, that perfect solidity which Sir David Brewster has now most beautifully shown to be produced, and only producible by the successive convergences of the optic axes on different points, we will yet obtain a picture which is a much better compromise with visible Nature, as seen by a two-eyed animal, than any which ordinary one-picture photography can produce, and which may be, also, of no use to the painter and other artists who profess to represent visibly Nature as on a flat surface, in showing them how much and what part of Nature they ought to aim at giving us. The two latter plans I communicated to the Edinburgh Photographic Society, in a paper read before it on the 10th of February, this year; but as they have not yet been brought fully in the literary organ of that society, I would be much obliged by your giving photographers in general an earlier opportunity of comparing them with the new 'Hallotype' process. Sir David Brewster's eye lenses will no doubt, give us a much more perfect picture than our belt or band-lens, and a picture most valuable as a mathematical projection, and for many purposes; but then it is not the picture which we do see in Nature, and which we therefore look for in Art. Rather give us, for general purposes, a tolerable approximation to what we do see, than the best possible representation of what we do not see. The common lens gives pictures which err by redundancy; Sir D. Brewster's eye-lens pictures, which, though the most exquisitely perfect things in the world, are not just what we are looking for, and our band-lens a picture which, though only a compromise picture, as we have already stated, will yet, we think, prove more satisfactory than either to non-Cyclopean 'ungouged' humanity. The band-lens will also have the advantage in rapidity over the one-eyed lens of the same width, or we may reduce the breadth farther without making it unworkably slow in its operation. Should any one be anxious to get a picture of Nature in an out-of-the-way aspect, he has only to turn the lens till the belt is upright instead of horizontal, when he will get a picture of the same class which he sees in looking at nature with his head lying on one side.

I am, &c., C. J. **Burnett.**

P.S.—I do not know whether any one has been before me or not in an experiment as to the taking of photographs from the images produced by the kaleidoscope. The results might be convenient for reference to our art-manufacturers. We require for this purpose a suitable lens before the plates of the kaleidoscope. As to the system of band-lens, which I recommend, its application might, of course, be extended to microscopic photography and to other purposes.

PROTOSULPHITE OF IRON.

To the Editor of the Liverpool Photographic Journal.

Sir,—In your Journal of last month, I read with some surprise the egotistical paper of Mr. Keith, read before the Photographic Society at Liverpool, wherein he claims the discovery of the use of iron developing solutions for positive photographs on glass. He seems little acquainted with the writings of the French and German photographers if he does not know that M. Martin published a paper in *La Lumiere exactly five years ago*, describing the use of iron solutions as developing agents; or perhaps (which is more likely), believes other people so ignorant or oblivious, that they are ready and willing to grant him the honor of a discovery to which he has wantonly and audaciously laid claim.

Mr. Keith wishes the world to believe that the use of this agent has hitherto been known only to himself, and that [for trade purposes] he kept the secret to himself, but now having no further need of such concealment, he offers his formula as a boon to the photographic world.

How comes it that thousands of people throughout the British Isles, America, and Europe, have been able to obtain by the use of iron mixtures such excellent pictures, worthy to bear comparison with any that Mr. K. ever produced, if a knowledge of its properties has been known only to himself and kept secret? He has his answer ready,—he communicated the discovery to two or three of his friends. Is it not curious that the whole civilized world should have been instructed by *these few friends* without ever Mr. Keith having known or suspected their betraying the trust reposed in them?

'Tis true that he sent Mauson, a dealer in chemicals in Newcastle, a copy of his formula for trial, but seeing nothing new in it, he made several changes in the quantities of chemicals used before he recommended any of the customers to use it.

The fact is, that Mr. Keith has seen pictures in the Manchester Exhibition, equal if not superior to any of his best productions, by persons who until now were never known to practise photography, and fearing competition, he wishes to claim the honor of being the father of positives on glass. * * * * I do not undervalue Mr. K.'s productions, but I protest against his egotistical claims. His success has depended entirely upon his manipulation.

Not, however, content with claiming a discoverery which is not his, he vents his spleen against the Editor of the *Photographic Notes*, and accuses him of having surreptitiously obtained his formula, and, with a few alterations, published it in his *Notes* as his own. Mr. Sutton lays no claim to any new discovery, but simply gives his formula as one which produces generally better pictures than the others used by photographers. It is Mr. Sutton's business to cater as much as he can for the instruction and amusement of his readers, but no one would ever think of ascribing to him motives for publishing his formula but those of honor and honesty.

* * * * * * * * *

I am, sir, yours obediently,

Durham, June 4th, 1857. I. O. C.

Personal & Art Intelligence.

— We have to congratulate ourselves as well as our subscribers, that the long-looked-and-hoped-for time has arrived when we can issue our *Journal* promptly on the first of each month. Our July number made its appearance on the first of the month, and the August number will be received by nearly all our subscribers throughout the country on that day. It may not be generally known, but the Journal has heretofore occupied but a small portion of our time, and in many of its departments (editorial only excepted), we have been obliged to depend upon others; and we regret to say that those to whom we entrusted the several duties appertaining to its mechanical department, most shamefully neglected their duties. A change and six months trial have convinced us that we now have those in charge who will do their duty faithfully, and that we shall not hereafter be under the painful necessity of rendering repeated excuses and apologies for our short comings. We have but one more branch of our publication to revise, amend and improve. We find that it is folly for us to place any dependence upon our practical photographers for negatives for our illustrations. We have therefore made up our mind to change our plan in this branch in toto. After this year—nearly all our photographs for the present volume being printed—we shall give *original* views, copies of fine engravings and paintings, and portraits of celebrated public men and women—the subjects being such as will be of general interest to all, both in and out of the profession. We have been led to this determination from the utter failure we have experienced in getting such negatives as we think most suitable for a work of the character and standing of the Photographic and Fine Art Journal. In almost every instance we have been unable to complete the full complement of impressions for the Journal and have them of equal merit. In some cases the negatives would change so rapidly in consequence of improper fixing, or the use of bad varnish as to be almost useless before half the number desired were printed. At other times the varnish would be too soft, and each impression taken would mar the negative. Some negatives were too weak, and although they might have given better impressions under *very* skillful hands, it could not be expected that, in the rapidity of operation requisite to produce a sufficient number in a given time, they could receive full justice. Some of the negatives were also almost ruined by the careless manner in which they were varnished, the operator suffering innumerable black specks to get between the varnish and collodion film. Almost all these faults are undoubtedly due to that fatal pre-dispositing—which seems to belong to all photographers—to delay, which has caused them to put off the fulfillment of their promises to us until the last moment, and then, in their haste, overlooking those minor points of manipulation, which have produced the effects of which we complain. With the best of negatives we cannot at present hope to have each and every picture perfect, and it therefore becomes the more necessary to have the former perfect in every particular, in order to prevent the increase of imperfections in the latter. The imperfections of printing we can readily rid ourselves of by destroying every poor impression; but when we are called upon to correct the faults of the negative also, the cost becomes too great. The faults of printing are referrible to our having confined ourselves, in toning, too closely to the views of English and French artists, who we are convinced are, in very many points, very incorrect in their theories. We shall take occasion to give our views on this subject in a future article. We will here, however, conclude by saying that we consider over printing and over toning the great stumbling block to perfect positives, and that in making negatives the photographer should strive to obtain such as will meet all the requirements of artistic taste, combined with the quality for the proper degree of printing for obtaining the desired intensity of color and clearness in the shortest possible time, and an equal rapidity of fixation. Over printing, over fixing and over toning, are the great causes of fading.

— The remarks of our friend Stroud have been misunderstood, and we feel that the strictures upon his note in our last are undeserved. We shall permit the gentleman to be heard, at the same time we cannot refrain from expressing our regret that they should misinterpret the note of Mr. Stroud, who we conceive to be too much of a gentleman to willfully place any of his co-laborers in the Art in a false position. His whole intention, we have not the slightest doubt (otherwise we should not have published his note), was to caution others against what he conceived only another of those travelling humbugs that are constantly travelling through our land victimizing photographers. Our friend Johnson says—

"In glancing over a page of your last number, I noticed a paragraph in which some anonymous correspondent, or one whose name you do not choose to publish, with very bad taste, attempts to bring ridicule upon Mahan and Good of this city * * * * for having purchased a process for transferring the *ambrotype* to patent leather. * * * * * * * I also purchased the process * * * * * it is a far superior one to that you have published, and therefore valuable."

There are too errors in this statement, and one mistake. The references to Messrs. Mahan and Good (as well as to others), was not made by an anonymous correspondent, neither did we conceal the name, as it was given at the *head* of the paragraph *in full*. The mistake is that Mr. Stroud wished to cast ridicule upon Messrs. Mahan and Good. Had such been his desire, he would not at the same time have mentioned the names of personal friends. We would also call the attention of our friend to the fact that we have published several processes for making transfers to leather in our Journal, and we doubt, very much, therefore, the originality of the process with the individual in question.

— Messrs. Mahan and Good have also sent us the following communication on the subject. We should have preferred their writing in the same spirit evinced by the correspondence whom they so severely criticise. We trust, however, our explanation above will satisfy them that they have misconceived the intent and meaning of Mr. Stroud in coupling their names with the transaction. There certainly was no just cause for the bitterness expressed.

Philadelphia, July 14, 1857.

To the Editor of the Photographic and Fine Art Journal:

Sir,—In your Journal of July, we noticed an article purporting to have come from a Mr. Stroud, to which we feel ourselves called upon (*though unwillingly*) to answer, lest some of the knowing ones who do take the Journal, would swallow the whole of Mr. Stroud's epistle, and take it for granted that we had been most awfully victimized. In answer to that we have only to say, we are of that number who do take the Journal, and we tried the process laid down in said work, and that our success was but very indifferent; in fact we could not do it with success. We then purchased the process from an "individual" as Mr. Stroud calls him, and we have succeeded to our entire satisfaction. The process we purchased is entirely different from that published in the Journal, the wise opinion of Mr. Stroud to the contrary notwithstanding. We would like to know in what way Mr. Stroud justifies himself for bringing our names into a public Journal where we have not the least desire to see it. If Mr. Stroud is ambitious to see his name in the "Big Journal" he can do so, but we are not as anxious to see our lives in the Big Journal as Mr. Slumkins was.

Very respectfully yours,
Mahan & Good,
910 Market Street, Phila.

— Mr. W. R. Sutton.—The young man having charge of the mailing department assured us that your photographs were sent on the receipt of your list by first mail. We have, however, (July 14th) mailed you another set with our own hands—prepaid.

— Chas. S. Stokoe.—We mailed the missing numbers July 14th, prepaid.

— Negative and Positive Processes on Glass and Paper; by H. D. W. Moulton, Practical Photographer.—Seely & Garbanati Publisher, 424 Broadway, New York. This is the little work we have before announced as in preparation. Those who have seen Mr. Moulton's pictures need no further recommendation of the book. It is a short, but perfect and full treatise on the collodion process, comprehending all that is *necessary* to be known in order to secure the best practical results. The reasons for giving his process in this form is not so much for pecuniary gain as to meet the wishes of a large class of operators, who, unable to visit New York to receive practical instruction, yet desire to work his process. The numerous calls upon his time for written instructions he finds it impossible to comply with, and he has concluded that to print his formula will satisfy his correspondents, and relieve himself of a great tax. The price of the book is *five dollars.*

— Inroads it appears are made upon the *rights* as well as *ignorance* of our country *operators*, and a new and just cause of indignation is thus most dignifiedly expressed. We certainly want a *Photographic Society* to keep these things straight.

Cold Spring, July 16, 1857.

Mr. Snelling:—There has been a fellow here a day or two selling Union cases to families and to any who would buy them. My object in writing to you is to ascertain whether the manufacturers of those Union cases countenances an act of this kind. For myself, I care little how many are sold where I am operating, no more than that they are sold so that the price are in consequence reduced. Persons who buy these cases think that they have all that is requisite, the likeness being but a secondary consideration forsooth. Has it come to this? Has the magnificent Art that cost the noble-minded and ingenious Daguerre so many hours of toil, labor, and perseverance to discover, come to such a pass? Have men who have learned this truly beautiful Art lost all respect for it, that they take likenesses for a dime and two dimes, and such prices? Shame on the man who would reduce a noble Art to that degree. Are there not men enough left who practice the art, who have respect enough for it to frown down all such mean contrivances to bring it into such contempt, and restore it again to its original respect, and place it where it belongs amongst the most noble and useful of the sciences?

Most truly yours,
A. L. Daniels.

— We had the pleasure of a visit from Mr. F. A. Wenderoth—now of Philadelphia—and of seeing several most exquisitely beautiful colored photographs. The coloring on these pictures was executed by a new method adapted by Mr. Wenderoth from an ancient process, and is exceedingly applicable to photographs. The portraits shown us have all the finish and delicacy of the most delicate ivory miniature—in fact we doubt whether any one, however well versed in the art, could discriminate between them and real ivory. They also resemble the *Hallotype*, but are much stronger and more brilliant in color. They require less photographic manipulation but greater artistic skill in their execution. As a painter of photographs, we must place Mr. Wenderoth at the very head of the ladder of excellence. He combines fine taste with consumate skill, and he must necessarily use his brush with remarkable facility.

— The following are the most recent *Photographic Patents.*

Improved Apparatus for Exhibiting Stereoscopic Positives; Alexander Becker, City of New York. *Claim,*—"1st. Arranging the pictures at right angles to the endless belt. 2nd. The mode of securing the pictures in the grooved slides, by means of the elastic bands and notches in the ends of the grooved portions of the slide."

This is in reality a most excellent arrangement and admirably adapted for exhibiting stereoscopic pictures in galleries or private rooms.

Improvement in Photographic Trays; Daniel J. Kellogg, Rochester, N. Y. *Claim.*—"The employment of the moveable bottom."

This has been pronounced an excellent arrangement by some of our first photographers.

Improvement in Baths for Photographic Papers; John H. Morrow, assignor to self and Edwin Bennett, Baltimore, Md. *Claim.*—"The improved form of constructing a compound or double-chambered immersing bath, having an immersing chamber, and a dripping receptacle formed with slopes or inclined upper surfaces. Also, the suspension forked dipper device or tablet holder formed with the spur or ridge. Also the brackets or rests, in combination with the immersing bath."

Improved mode of constructing Photographic Baths and Pans; George Mathiot, Washington, D. C. *Claim.*—"To construct the baths and vessels for Photographic use of an impervious substance, formed by the combination of a cement with an earthy matter, or its equivalent; and also to form the bath, or other vessels, by first forming the vessel of unglazed pottery, or its equivalent, and making the pottery impervious by saturating it with wax, gum, balsam, rosin, pitch, stearine or siccative oil, or the equivalent to any one of them."

For a Varnish to Prepare Photographic Grounds for Wood Engravers; Robert Price, Worcester, Massachusets. *Claim.*—"The varnish composed of asphaltum, varnish, lampblack, and ether, when the same is applied to the block by rubbing it into its pores." Fudge!

— Our Printer committed a grave error in printing Mr. Dabbs' name to the portrait in our last number, and we were so unfortunate as not to see it until all had been mailed. Our apology is due to Mr. Dabbs for this mistake, which we regret exceedingly.

Philadelphia, July 21, 1857.

Mr. Snelling:—I am almost ashamed to trouble you so soon again, but knowing that Editor is but another name for Job, whose patience was never known to be exhausted, I have no scruples whatever of trying it upon this and all other occasions. My object in writing to you at this time, is to get you to correct an error which occurred in my article on cleaning glass, making it appear quite ridiculous. It will be found in the proportions of acid and mercury, which should be

Nitric acid.......................1 ounce.
Mercury...........................$\frac{1}{2}$ drachm.

If you will refer to my copy you will see who made the mistake. I would have made this request of you sooner, but by some cause or other I did not get the June number until yesterday, although I have had its successor for some time. I am right glad to see that you are *getting out so early in the month*, and hope that you may be encouraged accordingly in the shape of a little more *material aid.* I know some little of the difficulties of going to press in time. What a significant word "*press*;" how often is it a press upon one's time, mind, heart and pocket.

Your correspondent was correct in supposing that I did not buy the Patent Leather Process.

Yours truly, M. P. Simons.

— W. H. Tilford.—This gentleman has just paid us a visit, and presented us with a very fine large photograph. These photographs would do credit to any Eastern gallery.

— Mr. Meigs.—Your letter is received and will be promptly attended to.

— The photographs for 1856 as far as ordered to date, have been regularly mailed. Those who have not sent us lists will please do so.

From the Jour. of the Phot. Soc.

ON GLYCYRRHIZINE IN NEGATIVE COLLODION.

BY MR. HARDWICH.

(Read June 4, 1857.

At a meeting of the Society in December last, a paper was read upon collodion, iodized with the alkaline iodides, in which the change which it experiences by keeping were partly explained, and the effects produced by these changes dwelt upon at length. But independent of the iodized collodion there are decompositions continually taking place in plain collodion, and also in the exciting bath, minute in quantity, but sufficient to alter the character of the picture. The collodion process cannot be said to be perfected until means have been devised of imitating these changes artificially, so that all the solutions may be prepared at once in a state fit for use. By the formulæ at present given, this cannot be done. In certain kinds of photography, ordinary collodion is not adapted for the purpose until it has undergone alteration by keeping.

The employment of glycyrrhyzine, the essential principal of liquorice root, is proposed as a means of readily conferring intensity upon collodion. It is now more than a year since I first became aware of the peculiar properties possessed by this organic body, but as the whole subject of intensity is difficult, and requires very careful investigation, it was thought better to wait until a long experience had proved the practical value of the process.

The following experiments will suffice to show that glycyrrhizine is a substance which has an influence in photographic processes. Take pure chloride of silver, precipitated from excess of the nitrate, and expose it to light; it will change from white to violet-blue. Repeat the trial with a second portion to which glycyrrhizine has been added; the violet-blue color will then be replaced by a chocolate-brown. Glycyrrhizine, therefore, belongs, photographically, to the same class of bodies as albumen and gelatine. Again, if glycyrrhizine be added to solution of nitrate of silver in minute quantity, no precipitation at first occurs, but on exposure to sunlight, a flocculent red substance gradually separates, which contains organic matter combined with silver, and is closely analogous to the red albuminate of suboxide of silver, so termed. Now we know that, as a rule, substances which have a colorific action on the darkening of chloride of silver, possess a similar effect in the development of the invisible image on iodide of silver. Hence both albumen and gelatine give an image differing from the image on pyroxyline, which is a body nearly or quite inert to the salts of silver. By associating pyroxylide with glycyrrhizine, we have a supporting basis which corresponds nearly to albumen in possessing both a mechanical and chemical action. Portions of the sugar-resin, so minute as almost to escape observation, when added to the collodion, alter the character of the image, imparting to it, under favorable circumstances, a brownish-red translucency with a soft yellow creaminess by reflected light.

With these preliminary remarks we dismiss the theory of the subject, and proceed to describe the mode in which the glycyrrhizine is to be used.

A pure collodion is first made, iodized with iodide of cadmium: this preparation is stable and will preserve its properties unchanged for many months. Next, glycyrrhizine is dissolved in strong alcohol, in the proportion of 5 grains to the ounce; and iodine in similar quantity. With these three solutions any description of collodion photography can be performed.

I proceed to give more minute directions.

1st. *Collodion negative portraiture.*—The operator should commence by taking a trial picture with the pure collodion untouched. The sensitiveness will be very great, but it may happen that the image developes somewhat slowly, and of blue tone, particularly if the nitrate bath contains free nitric acid or if the light is bad at the time of taking the picture. Both these points should be noticed, as they will certainly affect the result: an old and brown collodion often gives abundant intensity, even in a bath containing free nitric acid, but with a pure collodion, nitrate of silver from which the acid has been expelled by fusion should always be used. Supposing the bath, however, to be correctly made, the intensity of the image will not be so great on first mixing it, as after the lapse of some months when partial decomposition has taken place.

With regard to the second point mentioned, viz. the state of the light at the time of taking the picture, the rule is, that the greater the actinic power, the less the chance of any organic addition to the collodion being required. The same solutions which have been tested in the open country and found to produce brilliant negatives will often fail to do so when worked in the smoky air of a large town. The condition of the film must be different under the two circumstances to produce a similar result.

When the glycyrrhizine is employed for portraiture, two drops, equal to one minim, of the solution, or to about $\frac{1}{100}$th of a grain of the solid resin, will often be sufficient for an ounce of the collodion; anything beyond that would probably give too great density, and destroy the half-tones in the face; much, however, will depend upon the light, and in a glass-house in London, during the winter months, four drops, equivalent to 2 minims, may be used without any very obvious effect. Gradation of tone being of extreme importance in portraiture, all organic additions must be made cautiously, or a hard and severe picture with obliteration of the folds in white drapery will be the consequence.

The addition of a few drops of nitrate of silver towards the end of the development hastens the process of intensifying the negative, and it will be observed that the organic matter in the collodion has a beneficial effect in facilitating the second decomposition of silver.

Taking six seconds as an average time of exposure for a negative portrait in a good light, allow it eight seconds in the camera after the addition of the glycyrrhizine.

The collodion for negative portraiture may be used neutral and colorless, but if, from diffused light in the camera and developing room, or a faulty state of the chemicals, the image should develope misty, two or three drops of the solution of iodine will prove a remedy.

2ndly. *Landscape Photography.*—The pure collodion sometimes succeeds, but as a rule an addition will be required. With an old nitrate bath which has been mixed for twelve months or longer, full intensity is often obtained, but not so easily in the case of a new bath. During frosty weathers when the air is clear, negatives may be taken of considerable density with the simple collodion, but in a misty atmosphere the development is feeble. Three, or at most four drops of the solution of glycyrrhizine to the ounce of collodion is the quantity recommended.

If the finished negative, on being held against the light, appears too red in the skies, push the development a little further, or drop the solution of iodine into collodion until it assumes a yellow tint. As this addition diminishes the sensitiveness of the film, it should only be made when the light is strong. In a weak light the iodine would lower the intensity considerably, and render the image blue and metallic.

At the present season of the year, the time of exposure in a small stereoscopic camera, with a lens of $4\frac{1}{2}$ inches focus, and $\frac{1}{4}$ inch diaphragm, is about ten to twelve seconds, after the glycyrrhizine has been added to the collodion.

On comparing together negatives taken with and without the addition of the glycyrrhizine, the difference was seen principally in the skies, the foliage and other dark objects being nearly similar in each. Hence it is evident that the sugar-resin acts by giving a sufficient intensity under the influence of a powerful light acting upon the film.

3rdly. *Copying Prints, &c.*—In this case the organic body acts very beneficially, increasing the rapidity of development, and giving density to the blacks. An addition of free nitrate of silver will be needed towards the end of the development, but far less than when the glycyrrhizine is omitted. The stronger the light the more evident will be the effect produced by the organic matter, and hence the print to be copied should, if possible, be hung in the open air, and a lens of large aperture and short focus employed when practicable. With a long focus lens and small diaphragm, if the day be dull and cloudy, the negative will develope feebly, in spite of the glycyrrhizine.

The time of exposure with a single lens of 20 inches focus, and ½ inch diaphragm, to copy prints of the same size as the original, will be about thirty seconds, if the sun shines directly upon the picture. Three or four minutes may be occupied in the development, and the finished negative will be brown or purple by transmitted light.

General Remarks.—To ensure success in the employment of the liquorice sugar, the following points should be attended to.

First, add the sugar to the collodion, if possible, a few hours before use; the increase of intensity will then be more decided.

Secondly, the glycyrrhizine must be in a state of chemical purity, or it will dissolve in the collodion only partially, and spots will result. In the liquorice root it exists in combination with bases, lime, and ammonia, in which state it is soluble in water, but insoluble in alcohol. When separated from the bases, by means of sulphuric acid, it dissolves easily in spirits, but only to a small extent in water. In addition to glycyrrhizine, the root contains other principles which interfere with the result, and must be removed by digestion is strong alcohol. Alcoholic solution of glycyrrhizine is rendered darker in color, and partly decomposed by evaporation at 212°, but at ordinary temperatures it may be preserved for several months in a state fit for photographic use.

The quantity to be added to the collodion must be kept nearly within the prescribed limits will be much impaired, and the dark parts of the object imperfectly rendered, producing a chalky print. When too much of the sugar is used, the formation of the sensitive iodide of silver will also be interfered with, so that a collodion which ought to give a yellow film will produce only a blue and smoky layer quite useless for negatives. This point having been reached, a further addition of glycyrrhizine altogether prevents the precipitation of the iodide, so that the plate remains clear and transparent in the bath. No experiment could show more conclusively than this, the important influence which organic matter may exert upon the properties of the salts of silver.

After the addition of the liquorice sugar, the sensitiveness of the collodion decreases slowly by keeping, so that at the expiration of six weeks or two months, double the original exposure may be required; the intensity remaining nearly unaffected. There is also after a time a tendency to gelatinize the collodion, which must be avoided by using pyroxyline of the variety which gives a fluid condition, sticking to the glass, and drying free from crapy lines.

Methylated spirits cannot be used either as solvents for the glycyrrhizine or in the collodion; they appear to have chemical action, at first adding to the intensity, but afterwards greatly diminishing it. The collodion is also more liable to become glutinous than when made from pure spirits.

The collodion should be iodized with the iodide of cadmium only. When the alkaline iodides are employed, the effect first produced appears to lesson by keeping. Alkaline iodides are also frequently contaminated with carbonate, and carbonated alkali acts chemically upon the glycyrrhizine, rendering it insoluble, and producing specks and pin-holes in the negative. Pure alkaline iodides may however be employed if conjoined with a portion of bromide. This collodion gives great intensity in a strong light, but in a weak light the image is feeble, bromide of silver being less sensitive than the iodide.

Before introducing the glycyrrhizine, test the collodion with litmus paper: if iodized with iodide of cadmium the reaction should be acid, but it is sometimes alkaline from the commercial spirits containing free ammonia (?), and in that case acetic acid must be added, or the image will be red and feeble in a strong light.

Hyposulphite of soda is better than cyanide of potassium for fixing the negative; the latter sometimes exercises a solvent action, and reddens the image. The organic matter in the collodion alters the character of the image and renders it more soluble in a solution of cyanide of potassium.

No apprehension need be entertained that the nitrate bath will suffer from the use of glycyrrhizine. Baths made a year ago, and which have been employed largely with collodion so intensified, are still in working order. The liquorice sugar may even be added in substance to the bath without causing fogging, and as the effect of giving intensity is produced in this way, it may prove in some cases to be the best process. Difficulties occurred at first in carrying out the idea, but these have now been overcome, and if further trials should confirm the result at present obtained, glycyrrhizine in the bath will partly supersede the addition of the same material to the collodion.

The employment of the glycyrrhizine in the bath allows the use of collodion iodized with the alkaline iodides, which for plates exceeding 10 by 8 inches is an advantage. The principal, and, perhaps, the only objection to the salt of cadmium as an iodizing material, is that it tends to glutinize the collodion, and to produce a thickening towards the lower edge of the film. This may be obviated to a certain extent by careful manipulation, but on very large plates a woolly appearance will be seen in the skies and dark parts of the negative, unless the collodion is applied skilfully.

The addition of an equal bulk of collodion, prepared from the same pyroxyline, but iodized with iodide of potassium or ammonium, increases the fluidity, and produces a mixture more suitable for the purpose.

Mr. Williams.—I should like to ask Mr. Hardwich a question as to the mode of making glycyrrhizine.

Mr. Hardwich.—I shall be happy to give all particulars in a communication to the Journal, but I did not think it prudent to do so on this occasion. It will, however, be found fully described in the larger works on chemisty.

THE STEREOSCOPIC PANOPTICON.

To the Editor of the Liverpool Photographic Journal.

Sir,—We have lately seen in the columns of *The Times* a somewhat acrimonious dispute waged between two eminent philosophers, in regard to the invention of the stereoscope; one of them laying claim to this honor for himself, while the other refers back to the germ or principle of the invention to an ancient Greek philosopher. Without presuming to say whether Sir David Brewster or Professor Wheatstone has the best of the argument, or indeed whether either of them be perfectly right in his view of the matter, it may be safely affirmed that until photography supplied the means of giving practical effect to the discovery, neither the theory of binoular vision nor any other theory could ever have resulted in the production of so exquisite and unrivalled a philosophical toy as the stereoscope, and I believe that there are other departments of optics on which photography is capable of conferring a similar service.

There is, for instance, an optical toy called the panopticon, or magic circle, with which most of your readers must be familiar. By a very simple arrangement, a succession of figures varying slightly from each other, are made to appear as one figure in motion, or in the performance of some regularly recurring action. A series of such figures taken in photography would undoubtedly possess an identity and truthfulness unattainable by any other process, and would thus be better adapted for the purpose than drawings or prints, however carefully executed, could be. And might not a combination of this contrivance with the stereoscope to be constructed, so as to form a very amusing and popular variety of the latter instrument? There are various ways in which the combination could be effected, but probably the following might be the most convenient:—

In the first place, the photographic artist having decided upon the scene or action or group of actions he wished to represent, and having made arrangements with a person or number of persons for this purpose, would require to have them so instructed that they would allow him to take stereoscopic views of a scene at a number of—say eight or ten—different stages of its progress; that is to say, one entire performance of the action or scene represented should be interrupted by ten arrests or stops for such periods of time as would allow of as many stereoscopic representations being taken. The positives of these views, instead of being fitted up in the usual manner, would require to be pasted upon a sheet of card, one underneath the other in their consecutive order. By means of a penknife and ruler, a cut should next be made between each of the pairs of views, in order to cut half through the card, so as to allow of its being bent at those lines, and thus closely applied to the surface of a decagonal or ten-sided drum, upon which any number of such sets of views could be attached seriatim if required.

The drum or cylinder with a set of views thus attached to it, should then be placed in its position, by fitting the two extremities of its axis into sockets on the stereoscope adapted to receive them. To a person now looking into the instrument, there would be presented ten stereoscopic views slightly differing from each other according as each successive picture was brought into the field of view by the revolution of the drum. But to produce the magical illusion of there being but one group, and that in active and life-like motion, a small addition to the apparatus would be necessary, namely, a shade or diaphragm to each of the eye-glasses, by means of which they could be covered and uncovered in harmony with the motion of the drum. A handle could, by means of some simple mechanical arrangement, which it is unnecessary now to describe, be made, while rotating the drum, to cause the shades to cover the two eye-glasses, except at the moment when each successive picture was brought into the field of view—except at the moment when it was at right angles to the axis of vision.

An improvement, and one which would very much economise the work of the photographer, would be to represent the parts of the scene not in motion, by one fixed view in the form of an ordinary photographic slide, through and immediately behind a central open space in which the figures on the drum could be seen in motion, thus giving to the whole the appearance of a mimic stage representation, and converting the instrument into what might not inappropriately be designated a stereoscopic theatre.

The proper way, I conceive, to use the instrument would be, in the first place, to look intently at the scene with the first of the series of figures in position, so as to get a thoroughly stereoscopic view of it, and then to commence turning the handle at such a speed as might be found to produce the most natural and artistic pantomimic effect.

When I mention that I have not constructed nor attempted to construct a machine upon the principle now described, your readers will be apt to ask how I could expect any one else to bear the *onus probandi*—to take the trouble of practically testing the value of the suggestion. My explanation of this is the great difficulty which I should find in procuring views suitable for the purpose. But by its being brought under the notice of photographers, who have trained sitters, or rather actors, and other requisite expedients at their command, perhaps some of them may be induced, if I have made my description sufficiently intelligible, to put it to the proof. If this should serve, I can only wish that the result may be so remunerative as to repay the artist for his trouble.

I am, your obedient servant,
Wm. Fraser.

A pencil is a collection of converging or diverging rays.

From the Jour. of the Phot. Soc.

LONDON PHOTOGRAPHIC SOCIETY.

ORDINARY MEETING, JUNE, 1857.

Sir W. J. Newton, Vice-President, in the Chair.

The minutes of the last Meeting were read and confirmed.

E. Sutton, Esq. and W. W. Rouch, Esq. were balloted for and duly elected Members.

The Chairman.—Before proceeding to the business of the evening, I have the pleasure of communicating to you the contents of a letter I have received by order of Her Majesty. It is in answer to the following letter which I addressed to Col. Phipps on the 15th of May.

"Argyll Street, May 15, 1857.

"Sir,—Will you allow me to state that the Council of the Photographic Society presented a Memorial last year to Lord Palmeston in favor of Mr. Scott Archer, the inventor of collodion for photographic purposes, so that he might be placed among the list of annuitants upon a fund of about £1200 a year, which is, I believe, at Her Majesty's disposal; the plea being, the *importance* of this wonderful discovery for *public* objects, and which is extensively employed by Government at Gore House, at Woolwich, and at other places.

"Mr. Archer gave *freely* his discovery to the world, which, if he had taken out a patent for, he would in all probability, have realized a large fortune, but instead of which, he has been struggling with poverty for years, and finally, worn out with fatigue and disappointment, he has within a few days died, leaving his wife and family almost destitute.

"May I therefore request that you will kindly lay this sad case before Her Majesty, so that, if possible, Mrs. Archer's name may be placed upon the list, with a view to participate in the fund, which, I am informed, is distributed in July in each year? If, however, the award should be filled up for this year, whether Mrs. Archer could not be named for the next year, and any donation for this year, in order to supply present distress?

"I have the honor to be, Sir,
"Your humble Servant,
"W. J. Newton."

"The Hon. Colonel Phipps,
Osborne House."

I have received from Major Grey this reply:—

"Osborne May 18, 1857.

"Major-General Grey presents his compliments to Sir William Newton, and is commanded by Her Majesty to send a donation of £20 for the relief of Mrs. Archer's immediate necessities, and at the same time to inform Sir William that his letter has been forwarded, by Her Majesty's command, for the consideration of Lord Palmerston."

Prior to writing to Col. Phipps I wrote Mr. Hayter, Secretary of the Treasury, a statement of the case under the attention of Lord Palmerston. From him I have received this reply:—

"Treasury, S.W., May 22, 1857.

"My dear Sir William,

"I have read to Lord Palmerston your letter of the 13th instant, and he has desired that a note may be made of your recommendation in favor of Mrs. Archer for an allowance from the Royal Bounty Fund.

"If it is in Lord Palmerston's power, on distributing the Fund, to further Mrs. Archer's petition, you will receive a further communication from him.

"Believe me,
"Yours faithfully,
"W. G. Hayter."

"Sir W. J. Newton."

This Bounty Fund is not quite what we are seeking for; we are seeking for an annuity. I reminded Mr. Hayter, therefore, that although we should be exceedingly delighted to receive anything from this Bounty Fund, our object was, if possible, to get Mrs. Archer placed upon the list of the annuitants, desiring him to take any steps he thought advisable for that purpose. I think the command from the Queen is so all-important that I expect it will receive attention, and I hope we shall have a present gift of £25 and an annuity of £50.

Mr. Hardwich then read a paper on Glycyrhyzine in Negative Collodion (see p. 257).

Mr. Rejlander then exhibited his large allegorical composition, called the "Two Ways of Life," or "Hope in Repentance," and prints from the numerous negatives (nearly forty), from which it was built up.

Some conversation followed concerning the mechanical construction of the piece, as the various figures blended so well one with the other that no join was visible.

Mr. Rejander explained that it was accomplished by printing each figure separately on the large sheet of sensitive paper, shading every portion from the light but the actual part required in the picture. For such a picture as the one exhibited, the continued sunshine of three days was required, besides the closest attention and care in the printing processes, as at any moment one false step might spoil the whole of the previous work.

Votes of thanks were passed to Messrs. Hardwich, Crookes, and Rejlander, for their communications.

Messrs. Bland and Long exhibited their improved portable tent for working with wet collodion in the open air.

This Meeting terminated the summer session. The next Meeting will be held on November 5th.

From the Jour. af the Phot. Soc.

ON THE PRODUCTION OF PHOTOGRAPHS

On Fluorescent Surfaces; and on the different modes of rendering visible the Ultra-Violet Chemical Rays.

BY GEORGE WILSON, M.D.,

Professor of Techology, University of Edinburgh.

(Read before the Photographic Society of Scotland, May 19, 1857.

The object of the following communication is to point out the importance of ascertaining what influence the *fluorescence* of a surface has on its photographic sensitiveness. To myself the question is interesting chiefly from its relation to the theory of actinic action; but it has important bearings on photographic art, and as very little appears to be known on the matter, I have brought it before the Society. I encourage the hope that some of the practical photographers who abound amongst its members will take up the inquiry, and thus render a service to actinic science as well as to their own beautiful art.

It is scarcely necessary to mention that the term *fluorescence* was introduced by by Professor Stokes, to denote the remarkable property possessed by many solids and liquids of changing invisible actinic rays of high refrangibility into visible rays of low refrangibility, the word signifying in its fullest sense the reduction or degradation of light-rays, *visibleor invisible*, into rays of *lower* refrangible*. Nor need I do more than notice, that the greater number of the rays producing fluorescence are those otherwise named, from their high refrangible, ultra-violet or extra-spectral, and which, though themselves non-luminous, accompany the less refrangible visible rays, and, by the chemical and physical changes which they induce on *actinolytes*, such as the salts of silver†, render possible an art of photography.

Premising these points, my chief object is to inquire what difference it will make in actinolytic or (which comes to the same thing) photographic effect, when light, including the specially efficient ultra-violet rays, falls upon a fluorescent as distinguished from a non-fluorescent surface? The most perfect non-fluorescent surface known to us is propably that of a tablet of porcelain. The light which falls upon it does not, to the extent to which it is returned from its surface, exhibit any lowering of refrangibility, nor are any of the invisible extra-spectral rays changed into visible ones.

On the other hand, a slab of the canary-colored uranium-glass has such a *degrading* power over light, whatever its source, that the greater number of the invisible ultra-violet rays which impinge upon it are lowered in refrangibility and become visible. In consequence of this, the spectrum of any flame appears greatly more elongated when produced on the uranium-glass than it does on porcelain, the difference being so great in the case of the luminous voltaic arc developed between metallic poles, that, as shown by Mr. Stokes, its spectrum on canary-glass is six to eight times longer than its spectrum on porcelain.

Suppose, then, that the same actinolyte, such as chloride of silver, is applied to the surface of a sheet of uranium-glass and of a plate of porcelain, and that each is then placed in a camera obscura, otherwise exposed, in exactly similar circumstances, to the action of light. Can it be doubted that the chemical effect will be different on the glass, where the photographic rays are subjected to a remarkable change in properties, than it will be on the porcelain, where they suffer no such change? Uranium-glass is not employed by photographers, but other fluorescent solids are in constant use, of which I need only mention paper. Mr. Stokes has shown that paper is distinctly fluorescent, elongating the spectrum at its violet end, and by washing paper with a solution of sulphate of quinine, we may render it nearly as fluorescent as uranium-glass. Paper alone then, or still better, *quinined* paper, as I shall call it, will represent a fluorescent surface, such as may be made the subject of experiment in reference to the question before us. That it may be worth while to try experiments on the matter, will perhaps appear from the following statement. Although we are very ignorant of the mode in which light acts when it induces chemical and other molecular changes, we cannot but expect a difference of action where a ray undergoes no alteration till it encounters a chemical compound, as compared with the case where it is greatly altered in physical properties before it commences to induce, or whilst it is inducing chemical change. One of the most energetic actinolytic actions known to us, is that exerted by sunlight on living plants. The yellow color almost universally characteristic of budding leaves and germs, is probably a provision for enabling them at the period of their most active growth to absorb and turn to account all, or nearly all the chemical rays which reach them; and the change from yellow to green in the more mature leaf or germ is perhaps a provision for lessening the rapidity of the chemico-vital actions by dimishing the number of chemical rays absorbed. In either case the rays which are absorbed may be regarded as at once and *directly* expended in inducing both statical and dynamical changes in the growing organism, although the mode in which actinic force is transformed into mechanical, chemical, or vital force cannot be traced. In the same way, when sunlight passing through chlorine-water effects the analysis of water into hydrogen and oxygen, and the synthesis of chlorine and hydrogen, into hydrochloric acid, we have an example of direct actinolytic action such as probably occurs, along with much more complex reactions, in the great majority of photographic processes.

But when light falls upon a fluorescent surface, the ultra-violet rays which, if it were not fluorescent, would be absorbed by it, and directly induce chemical change, are lowered in refrangibility, and their actinolytic power must be altered in at least two ways. 1st. To the extent that the ultra-violet rays, are changed by degradation into visible rays, they come under the dominion of the laws of luminous, as distinguished from non-luminous light, and, as one result of this, are reflected visibly from fluorescent surfaces. Now it is not probable that such surfaces reflect, disperse, or radiate luminous and non-luminous rays to the same extent. I suppose that the luminous rays are rejected much more largely than those which are non-luminous, for the amount of photographic effect, *i. e.* of chemical change which could be induced by employing quinined paper to reflect the ultra-violet rays on even a sensitive actinolyte, would I apprehend, be small, compared with the brilliant illumination which the same paper exhibits when placed according to Professor Stoke's beautiful initial experiment, in the *dark* space beyond the lavender ray of the spectrum. However this may be, it cannot be doubted that the change of dark into bright rays which fluorescent surfaces induce, will be accompanied by a change in susceptibility of actinic emission from the surfaces in question; and this will tell in favor of or against, the photographic sensitiveness of a fluorescent body, according as experiment shall prove whether the ultra-violet rays are thrown off (and therefore lost for photographic purposes) to a greater extent before or after their optical degradation.

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* On the Change of Refrangibility of Light. By Prof. Stokes. Phil. Trans. 1852. pp. 478, 479. and 556, 557.

† We are in want of a single comprehensive term applicable to substances on which light exerts a chemical and physical change. In lecturing on the theory of photography, I have the word *Actinolyte* so convenient that I have ventured to introduce it in this paper. In its simplest etymological meaning, it signifies a chemical compound analysable into its components by light. I propose, to use it in as wide a sense as Faraday's term Electrotype (from which it is borrowed), so as to include chemical synthesis as well as analysis; and in the present state of our knowledge it would be convenient to extend the term to all the substances employed by photographers on which light exerts a marked sensible change, although it may be uncertain how far that change is chemical or mechanical,

2ndly. When a ray of high refrangibility is changed by a fluorescent medium into a ray of lower refrangibility, its chemical or actinolytic power must be correspondingly changed. On the undulatory theory at least this conclusion must be adopted; nor do I see how on any theory of light another conclusion is possible, although, of course, no hypothesis or theory could weigh against the results of experiment, should it point to an opposite inference. But in the absence of direct trial we seem entitled to infer, that when a ray, which by one prismatic refraction was carried far beyond the violet band of the spectrum is changed by passage through a solution of sulphate of a quinine into a ray, which on a second refraction appears, *ex. gr.* in the green band, it will exhibit the actinolytic or chemical power characteristic of green refrangibility[*].

Such, if I mistake not, is the view alike of Sir John Herschel and Professor Stokes, and I refer to it as conjectural, only because the *mode* in which rays of high refrangibility differ from rays of low refrangibility in chemical power, still awaits experimental demonstration; and we are as yet uncertain how far the difference is one of kind, how far one of degree, and whether or not the opposite ends of the spectrum exhibit a true relation of polarity[†].

It is quite enough, however, for my present purpose, to urge that degraded light has its chemical power altered, and therefore, that those ultra-violet rays which are retained by fluorescent surfaces, must affect them otherwise than they do non-fluorescent surfaces, which receive the rays without lowering their refrangibility.

I am anxious, accordingly, to induce practical photographers to experiment on this subject, for the sake of their own art, and of actinic science, The operations with the camera obscura, and the processes employed in photographic printing, alike admit of interesting trials being made. Paper washed with a weak solution of sulphate of quinine, or of infusion of horse-chestnut bark, or of acidulated infusion of turmeric, or of thorn-apple seeds (*Datura Stramonium*), would furnish a highly fluorescent surface, not incompatible with the employment of some at least of the usual photographic chemicals or actinolytes. A partial wash, as of one half of a sheet of paper with a fluorescent liquid, would enable the contrast between the action of degraded and undegraded light to be readily observed, or the fluorescent substance might be added to the collodion, or to the exciting and developing solutions. But it is not necessary that I should trouble practical photographers with suggestions on these points. Their attested ingenuity in modifying processes will more than suffice for experiments of the kind proposed. I would rather urge a careful study of Professor Stoke's most lucid exposition of his own beautiful researches (Phil. Trans 1850, p. 463), as the best preparation for the proposed investigation. As paper, glass, some kinds of gelatine, resin, and most organic bodies, (including probably collodion) are fluorescent, the photographer is daily, though unconsciously, experimenting on the relation of fluorescence to photography. It is only desirable that by exaggerating the fluorescence of the media which he employs, he should bring into greater prominence phenomena which in his ordinary modes of working escape detection.

The title of this paper refers solely to the production of photographs *on* fluorescent surfaces, but I wish to add a few words on the converse production of photographs *from* such surfaces. A plate of uranium-glass, and a plate of porcelain of equal dimensions and equally illuminated, will produce very different images on a sensitive surface in the focus of a camera. The uranium-glass changes the invisible rays falling upon it, into less refrangible rays, which as such enter the camera. The porcelain reflects the invisible rays unchanged in refrangibility to the sensitive surface. The photographic effect must be different in the two cases. Now the relative fluorescence of the various surfaces making up a landscape or a group of figures considered as imitable pictorially is very different, and this, I apprehend, is one cause at present overlooked, why it is so much more difficult to photograph some objects than others. Porcelain and paper *ex. gr*, though equally white, and equally illuminated, will yield dissimilar photographs to the camera, owing to their unequal fluorescence. Mr. Stokes has shown that the scarlet and crimson dyes obtained from safflower, madder, and cochineal are strongly fluorescent, and this no doubt is one reason why soldiers' uniforms, and red articles of female attire are so perplexing to portrait photographers. In general, color alone is taken into consideration as affecting the suitableness of an object for photographic copy; but two pigments of different chemical composition may be of the same color, and yet so unequal in their fluorescence, that the one shall yield to the photographer a very different result from the other. The mineral reds *ex.gr.*, such as vermillion and biniodide of mercury, are as a class more flourescent than the organic reds, such as carmine and safflower (Carthamin) .An oil-painting, accordingly, and its copy in water-colors, although to the eye identical in tints, may yield strangely dissimilar photographic transcripts.

This is but one example: others might readily be given. The varnishes used in oil-painting are fluorescent; so are green leaves, the majority of vegetable and animal bodies, and the dyes and tissues procured from them. On the other hand, chalk, marble, the majority of minerals, the native and manufactured metals, as well as porcelain, are non-fluorescent. Accordingly, our rules for copying photographically natural and artificial objects, and for selecting not merely the colors but the tissues or fabrics in which the human figures should be draped, would be much more precise, if we knew the part which the fluorescence plays in affecting photogenic results; and every such rule would be a direct addition to the data of actinic science.

Limiting myself in this paper to fluorescent reflection, I will only notice, in passing, that fluorescent transmission is not less important photographically. Its importance has been pointed out by Sir John Herschel and others, and I will do no more at present than remind photographers, that in printing from negatives, copying engravings, and otherwise employing *transmitted* light photographically, they have continually to take into account, the effect of fluorescent media, such as paper, glass, probably collodion, wax, albumen, gelatine and the like which they employ, in assisting or opposing the end they have in view.

The last topic I have to notice is the modes of rendering the ultra-violet rays visible. Simple arrangements for affecting this, would render the phenomena and laws of fluorescence more generally familiar than they are at present; and our knowledge of the relation of fluoresence to photography would be greatly increased if we had at command any easily manageable artificial flame rich in ultra-violet rays.

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[*] It does not appear to be yet ascertained how far the degradation of light tells upon its relative chemical, luminous, and thermic qualities, *ex. gr.* to what extent the transmission through a fluorescent medium, such as uranium-glass, of ultra-violet rays of a certain refrangibility, changes them into less refrangible rays *entirely* luminous, entirely chemical, or partly both. In the text I have supposed a derived green ray to be accompanied by a derived chemical ray of equal refrangibility.

[†] The theory of Professor Stokes includes not only the convertibility of chemical into luminous rays, but of both into heat-rays. It is, *ex hypothesi*, possible for a non-luminous ultra-violet ray to be degraded into a non-luminous ultra-red ray possessed of an *indirect* photographic activity, in virtue of its power to alter the temperature of actinolytes. We are familiar with the converse phenomenon (as specially noticed by Professor W. A. Miller) in the lime-ball light, where rays of low refrangibility proceeding from an oxhydrogen flame are changed by contact with solid lime into rays of high refrangibility.

Professor Stokes has fully pointed out the most convenient and efficient modes of isolating the extra-spectral *solar* rays and rendering them visible. He has also demonstrated the quality of artificial flames in respect of fluorescence, showing that burning hydrogen, alcohol, sulphuret of carbon and sulphur, respectively yield a much greater number of highly refrangible rays than more highly illuminating flames. Carbonic oxide, which I hoped would prove still more manageable than the combustibles named above, disappointed my expectations, and after trying many bodies, I have come back to sulphur burnt in oxygen, as after all the most convenient, although the irrespirable nature of the sulphurous acid resulting from the combustion, constitutes a serious objection to the use of sulphur, as well as of sulphuret of carbon. I shall presently show the Society the effect of illuminating uranium-glass, solution of quinine, and infusion of horse chestnut bark by sulphur burned in globes of oxygen, and those to whom the experiment is new will not fail to be struck by the remarkable change which those bodies, and especially the liquids, exhibit when transferred from an apartment lighted by gas to one lighted by flaming sulphur. The phenomena are in the highest degree beautiful, and their exhibition will convince such as may have been sceptical before, that Professor Stokes' discovery of a change in the refrangibility of light, is one of the most interesting and important which recent science has made. I am at present constructing a ventilating lantern, by means of which I hope to keep up a continuous combustion of sulphur in oxygen without annoyance to the experimenter; and should it prove successful, it shall be at the service of any member of the Society, who will investigate the relation of fluorescence to photography.

From the London Art-Journal.

ON ENAMEL-PAINTING.

BY CHARLES TOMLINSON.

No. II.

The Ceramic Court of the Crystal Palace contains a large number of specimens which admirably illustrate the beauties and the resources, as well as the defects and difficulties, of enamel-painting. The colors of some of the animals represented remind one less of the zoology of nature than of that of the hostelry, where from the failure of the intended effect, we have a blue horse, a red lion, &c.; but such blemishes are rare, and it would be unjust to dwell upon them when there is so much to excite our respect and admiration. For the sake of brevity, we select as one of the successes, of the art, a porcelain slab representing a lovely woman in an evening dress leaning forward so as just to catch the rays of the setting sun streaming in through a window on the right, which, however, is not seen. The arch expression of the face, the graceful ease of the figure, the excellence of the drawing, the subdued harmony of the coloring, would make this work admirable as an oil-painting; but when we consider further, the creamy softness peculiar to enamel, and the indestructibility of the work, our admiration ought, it may be said, to be increased. The painting is a Dresden work, lent by Lady Rolle; it is framed and hung up against the wall. It is this last circumstance which makes us qualify our admiration of this charming performance. The doubt crosses our mind whether, notwithstanding so perfect a result, it may be classed under legitimate Art. A skilful artist in oil would produce such a work in a tithe of the time expended by the enamel-painter, with none of those uncertainties in the results, which the process of firing entails. His colors would display their mute eloquence, and his work would be associated with the idea of progress, which we hold to be essential to success in Art: in enamel painting the idea of progress is lost, or embarrassed in the complication of the processes, in the disparity between present effects and final results, and in the uncertainty which must always accompany a work which has to pass through the fire. It is probably on account of the difficulties and uncertainties which beset his art, that the enamel-painter, except in the case of pattern design, seldom rises to the dignity of composition. His most successful performances are copies of celebrated pictures. Each picture furnishes him with precise results, places a standard before him, a target at which to aim, and thus relieves him of some of the uncertainty of his art. Provided he attain the rank of a successful copyist, he is satisfied; he fancies that he has reached the object of his studies. The jury of the Great Exhibition of 1851 (Class XXX.), in passing judgment on certain enamels on porcelain, and on metal, recognise this sort of merit. Speaking of a successful copy of one of Titian's pictures, they remark: "The character and deep transparent coloring of the original are admirably rendered;" and of a less successful copy of a "Holy Family," from a picture attributed to Raffaelle, they say, "The flesh is too pale, compared with the warm, powerful coloring of the original." In other words, praise is awarded to the successful copyist, and withheld from the unsuccessful. And justly so. If a copy be attempted, it should be an accurate one faithfully representing, in an indestructible material, the works of the great masters, and giving to future generations as good an idea of their pictures as can be gained in so different a material: yet we cannot help regretting that the fine talents employed in the mere copying of pictures should not be oftener directed to the more legitimate object of improving and elevating pattern design. Copies of pictures in tapesty, or in worsted, fall under the same objection which applies to enamel-painting, and have not its recommendation of durability. They are produced with great mechanical labor, require little or no metal power in their production, and are as costly, or even more so, than some of the oil-paintings which serve as models. An elaborate picture, woven with the jacquard apparatus, is unquestionably a mistake in Art, and can scarcely rank higher than pictures in needle-work, and "Dignity and Impudence" in worsted. *Patterns*, not *pictures*, are the proper subjects for such materials as fictile ware and textile fabrics, and the pattern-designer has an abundant field for the display of his invention and taste, if he study Nature, and the best models to assist the suggestions of his own genius; for, with the endless magic of form, and the equally interminable harmonies and contrasts of color, there can be no lack of subjects appropriate to the material to be adorned.

A highly wrought enamel-painting, on a snuff-box, or on a bracelet, is a legitimate exercise of the art: an oil-painting in such a position would evidently be out of place. What we object to is the making one branch of Art ursurp the place of another. A full-sized portrait in enamel is a mistake, since it cannot equal the effect of an oil-painting, although the difficulties of production are infinitely greater: a miniature portrait in enamel, on the contrary, as worn in a bracelet, is in character with the ornament to which it is attached, partaking of its durability, and admitting a similar amount of friction and wear.

Vases which appeal to our sense of beauty by the poetry of form and graceful proportion may still be heightened by the magic of color; bnt it admits a question whether landscapes and the figures of men and animals find a fitting place on such productions. A convex surface is not well adapted for a picture, and a design must suffer if the the spectator have to walk round a circle in order to view it. Hence the judicious artist covers the surface with a pattern, which, seen at one part, can be continued by the mind to the other parts; while the more ambitious landscapes, figures, faces, &c., are disposed in the form of medallions which admit of being viewed separately, like so many distinct pictures, if indeed, the position of the vase allow us to walk completely round it. In many cases, however, this is impossible; and the artist falls into the ridiculous dilemma of having painted a couple of pictures, only one of which can be seen. This difficulty is sometimes got rid off by substituting another—viz., by making the vase movable on its plinth, in a vertical axis, as we noticed at the museum at Sévres in some of the largest vases; thus effectually disturbing the idea of repose, which these massive forms ought surely to produce.

The figures of men and of natural objects introduced on antique vases had often a monumental character, and served the purposes of a people whose records were inferior as compared with our own, and whose religious associations required the use of vases so adorned. These exquisite and highly artistic forms mark the devoted affection of the living for those who had fallen asleep, and contrast strongly with the hideous piles of masonry which we erect to the memory of "the mighty dead." In the figures which adorn the antique vases, the colors are very few in number, and we may adduce as the nearest approach to them in modern times, the Limoges porcelain, in which only white and black are employed, with a few light tints of carnation for the face and some other parts.

But the vase, if judiciously adorned, harmonises so well with the poetry of life, and is always so suggestive of pleasing thoughts, and artistic associations, that we would allow considerable latitude in the amount and style of its ornamentation. Not so with most of the members, or "pieces," of a dinner-service. No amount of argument will convince us that it is decorous to cover with our food a highly finished copy of a picture by a great master. No amount of custom or fashion can make a practice æsthetically right which is, in itself, offensive to good taste. The very circumstance of hanging pictures on the walls of the dining-room condemns the custom of dealing out to the guests pictures on porcelain, to be viewed horizontally, and often upside down, and to be covered with food or its refuse. We quite agree with the opinion that in such articles as plates, dishes cups, and saucers, the ornamentation should be of a simple and subdued character. The objects themselves may be as graceful and elegant as a due regard to the proper use of the article will admit of; the material may, and, indeed, ought to be, of the purest and choicest kind; the glaze should carry out this idea of purity; the wreath of flowers, or other ornament, ought also to relieve, not disturb, the leading idea of absolute purity in the articles from which we take our food. Good taste in ornamentation will not offend in the minutest particular. A judicious use of gold will indicate the choiceness of the porcelain, since gold is out of place on common ware. The flower groups will be disposed so as not to obtrude either by their size or position. A mistake in this particular lately came under our notice; the interior of a porcelain tea-cup was adorned with four small groups of flowers, equidistant from each other, and near the edge. One group was placed just 90° from the handle, so that the lips could not avoid meeting it in the act of drinking. Good taste would have placed the flowers so as to leave the pure white porcelain for contact with the lips. So with many other articles in white porcelain; the ware itself is so pure and beautiful that we may say of it as the poet said of our first mother—

> "When unadorned adorned the most."

Custom, which reconciles us to the intense ugliness of every-day forms, has sanctioned the practice of elaborate ornamentation of dinner and dessert plate. The majolica ware set the the example, and the most celebrated porcelain factories have followed it up, and still continue to do so. Now a plate is not a beautiful object; but if it contain a choice enamel picture, it may take its place in a cabinet with other articles, with the forms of which it may harmonise. But what shall we say of the taste which covers the walls of a whole room with dessert plates!—horizontal and vertical rows of round plates embedded as medallions in the walls! And yet we have seen such a room in France, the land of taste—and it was in the imperial Palace of Fontainbleau; and it was done by order of Louis Philippe. It is true that the plates are of Sévres manufacture, each one containing a landscape, or an historical group, surrounded by a pattern border; but this freak was not wanting to prove that the improper use of beautiful and costly materials must result in ugliness.

The theory of enamel colors is now pretty well understood. Thanks to the progress of chemical science, we have now happily passed, as Auguste Comte would call it, from the superstitious" into "the positive phase" of fictile philosophy. And it now becomes our duty to give a brief account of the chemistry of enamel colors; but, as we have occupied so much space with these observations, we reserve our remarks for another paper.

PHOTOGRAPHIC ARTISTS OF BALTIMORE.

Baltimore, Md., July 28th, 1857.

Friend Snelling:—In criticising the different ambrotypists and photographers, you are liable to wage a war that never can be ended—for I have rarely ever seen an operator that does not think himself the best in positions or expressions in the country; I have seen boys that cleaned glass, have the audacity to say that if they had the charge, they could take better pictures than any body; a man that has been successful in making money, may think he is the best; another who has taken a premium at a fair, may think he stands foremost; another who has a fine gallery with splendid guilded trappings, may think he takes the palm: but 'tis all a mistake as I said in a former article, all operators take good and bad pictures. No great man was equal at all times.

The greatest portrait painter of the 19th century—Chas. Elliott, Esq.—sometimes fails not only in likenesses, but fails to make a good picture. The chemicals of a photographer are not always the same. The light is not the same at all times, and a man does not feel himself at all times, so 'tis an impossibility for an operator to suppose that he always takes the same kind of pictures.

The photographic and ambrotype business is as yet in its infancy in Baltimore, and for the want of energy, the proprietors of galleries do not push their business to that extent that it should be. There is not one gallery here that can keep one single artist busily employed. Mr. Perkins manages to keep an artist at work for some months, but his labors are so slow, that 'tis not worth while to say that he is kept busy. Mr. J. H. Whitehurst did formerly keep two or three artists, but now he barely keeps one German painting in water colors.

Mr. Pollock has his gallery in the best location in Baltimore probably; his apartments are of the best; no gallery in the country is superior, and yet he is not kept busy. You can always get a good picture at Mr. P.'s gallery, and every thing that he does is of the best possible kind His daguerreotypes and ambrotypes are good, his photographs are good also. But Mr. Pollock lacks that blarney which all operators generally have; and if he had a little more of the Young America in him, he would do the best business in Baltimore. Mr. P. does a small business but a safe one, and manages to do a paying business. Mr. P. is a conscientious, straight-forward, steady, upright man.

Mr. Perkins. This gentleman has made more money, or at least has more to show for it than any man in the business in Baltimore, although his gallery is not so well furnished, nor is his operating rooms more than a second class. The entrance is rough and bad. Mr. P. has a good class of patrons, and what he loses in fancy he makes up in reality. Mr. P. does a fair share of the business and gives general satisfaction. His business is wholly confined to making ambrotypes and painted photographs in oil.

There is no person in the business that has photographs painted in water colors except Mr. Whitehurst. From a long experience, pictures painted in water do not last near so long as in oil, and they are not so desirable. A photograph painted in water will fade very soon if not properly washed, while those in oil improve to a great degree.

Mr. Israel has one of Woodward's Solar Cameras in operation, and from appearances does a good business. Last Saturday there was a grand Rail-Road jubilee of Western visitors from Cincinnati, St. Louis, Chilicothe Ohio. The military were all out, and the procession was grand. Many views were taken of it by the different galleries—Mr. Pollock, Mr. Israel, and Mr. Whitehurst; of these three gentlemen, they all did their own operating except Mr. Whitehurst; all of them succeeded very well, and the pictures taken were very fine.

I am opposed to giving the proprietor of a room credit in the art of making pictures, simply because he owns a gallery. The man who produces the picture is entitled to the credit. The judgment of the community of the late fair given at the Maryland Institute on pictures, is just and commendable, for refusing to give a gold medal to a proprietor of a gallery for oil pictures, when there was not a word said about the poor artist who painted them. For when the photograph is painted, then it ceases to be the photograph and is a painting, as much so as an artist making a drawing and a painting; when an artist makes an india ink drawing, 'tis nothing more, when he applies paint to it, then it ceases to be that india ink drawing, and is a painting.

Baltimore has but few artists in oil compared with other cities. Amongst those who stand foremost as artists in this city, are Mr. J. K. Harley, a promising artist, who labors hard to climb the ladder of fame. Mr. H. is a fine draughtsman, and some of his crayon heads rival any of those made by more celebrated masters of France. Mr. Harley has been to Europe and has profited by his trip. Mr. Miller paints portraits, and fancy pictures. Mr. M. is a good artist and his works speak for themselves.

Mr. A. J. Way, a young man from the West also has been to Europe. Mr. W. Paints nothing but portraits, and his coloring is beautiful in many of his heads. Mr. McCan is an old veteran in the art, and has a daughter who paints creditable portraits and landscapes. Mr. McCan has been here for many years, and has won for himself and family, not only a good name, but great fame.

Mr. Woodward has distinguished himself lately by his invention of the Solar Camera; a good thing for his name and better for his pocket. Mr. W. painted portraits with great skill; his likenesses are better than his coloring; but he seldom fails to please his many patrons.

Messrs. Beebe, Vanarden, Cravalough, Dalmain, Brown and Slocum, are busy in their various studios. Mr. Wilson and Mr. Clarke paint photographs for Mr. P. L. Perkins. Mr. Elisha Lee has lately painted some beautiful small portraits.

John R. Johnston, Esq., has a studio full of work. Mr. J. paints landscapes and portraits; his landscapes are said to be in effect and design better than his portraits. He is now engaged painting a large picture for Geo. Christy, Esq., of New York. Mr. J. is one of the most industrious artists in Baltimore; if this is a qualification he has it.

Mr. Barber the sculptor, has gained great credit and fame, and deservedly too, by his statue of the "Coquette." Mr. B. is a native of Virginia.

Mr. Bebee the sculptor, has modelled two bas-relievos of Evening and Morning, which pieces alone would give him great fame if he never did any more. My notice is hasty, but I hope to pay all the artists of Baltimore a visit, and speak hereafter of their work separately.

Yours truly, J. R.

From the Jour. of the Phot. Soc.

NORWICH PHOTOGRAPHIC SOCIETY.

The Annual General Meeting of this Society was held in the Council Chamber on the 5th of June instant, the President (T. D. Eaton, Esq.) in the Chair. After the election of the Rev. J. R. Major and Mr. Theodore Day as Members, the Secretary read the following report:—

"At the end of another year of its existence the Committee of the Norwich Photographic Society again present their Annual Report to the Members. During the past year eleven meetings have been held and several papers read which have latterly given rise to much discussion amongst the Members—a matter of congratulation, as the more the sentiments and experience of different photographers are known and commented on, the greater the amount of useful hints that are likely to be elicited.

"The great feature of the past year has been the exhibition, an undertaking which, although entered upon with diffidence, proved eminently successful. As however the results have already been laid before the Society, it is not deemed necessary to further allude to them on the present occasion.

"The number of members has increased, notwithstanding that death and removal have at times, during the year, erased several names from the list.

"A portion of the funds of the Society has been expended on books and periodicals, but which, principally from the want of an eligible depository, have not hitherto been so available for the use of the members as could be wished.

"The Society's portfolio has been, during the year, enriched by many valuble presents, and promises to become of great utility to the Society by affording the means of testing the durability of pictures by various photographers."

The Secretary announced that notwithstanding the large expenditure of the year, a considerable balance still remained in the Treasurer's hands, and that the accounts of the Society would be laid before the Members at the July meeting.

After the passing of votes of thanks to the several officers, the following gentlemen were elected for the ensuring year:—*President*, W. H. Ranking, Esq. , M.D. Cantab. ;—*VicePresidents*, T. D. Eaton, Esq. ; Charles Morse, Esq. ; W. Bransby Francis, Esq. ; Henry Harrod, Esq., F.S.A. ;—*Committee*, Mr. James Howes; Mr. J. Stewart; Mr. F. T. Keith; Mr. T. Lound;—*Hon. Secretary*, Mr. Henry Pulley.

From the Jour. of the Phot. Soc.

DRY COLLODION PROCESS.

To the Editor of the Photographic Journal.

Sir,—It is quite wholesome to read so sensible a letter as that signed by an "Old Photographer," which appeared in the Journal for 21st of May last, and it would be well if those gentlemen who are so fond of modification would take a hint, and leave original formulæ as they find them, for, as a general rule, no benefit arises from the modifications so constantly thrust before the public.

As an illustration of the above assertion, I will take from the same Number of the Journal, an example of this kind, on the "Simplicity of the Collodio-Albumen Process," and endeavor to discover wherein the process propounded by Mr. Robinson differs from that of Mr. Ackland, which was published in the Photographic Journal in August and September, 1856. The first objection started by Mr. Robinson, is, as to the use of two baths of silver, but as he uses one bath *twice* in his process, wherein lies the advantage of having only one? it may be a positive disadvantage on account of discoloration by the albumen.

Passing over the cleaning of the plates, the coating with collodion, the excitation, the washing, the coating with albumen, and the putting away to dry (by the way, the precise proceeding in Mr. Ackland's process), I come to the *exposure*, which, Mr. Robinson says, on a bright day requires 5 minutes with a Ross' No. 3 landscape lens. This proves to me that the process is not so sensitive as Mr. Ackland's, as I have taken a view by his process in 2½ minutes on anything but a bright day, with a "Gaudin" lens.

The next objection I make, is to the time of development, which takes place, says Mr. Robinson, in *one* or *two* hours. Surely this is no improvement upon a system which occupies but 5 minutes.

To make the comparison clear, I will detail the proceedings in the two processes under consideration.

Mr. Ackland's.	Mr. Robinson's.
Cleaning the plate.	The same.
Coating with Collodion.	The same.
Sensitizing.	The same.
Washing.	The same.
Albuminizing.	The same.
Drying,	The same.
Sensitizing (2nd time).	The same.
Washing.	The same.
Exposing.	The same.
Developing (5 minutes).	1 to 2 hours.
Fixing.	The same.

And I now leave Mr. Robinson to show wherein lies the advantage of deviating from the original formulæ of Mr. Ackland,

Anti-Humbug.

From the London Art Journal.

TALK OF PICTURES AND THE PAINTERS.[*]

BY AN OLD TRAVELLER.

CHAPTER VI.

Giorgio Barbarelli—Harmony of appearance and character—Name of "Giorgione"—Distinctive characteristics—Loss sustained by Art in his early death—Morto da Feltre—Frescoes of Giorgione—Rarity of his authentic Works—Of some of the few in England—Fitzwilliam Museum, Oxford—Royal Institution of Liverpool—The Edinburgh Institute—Drawings at Oxford and Chatsworth—Thirstaine House—Castle Howard—Bowood—Portrait of Giorgione—Works in the Louvre—The Dresden Gallery—Venice—*Amende honorable* of Vonder Hagen—Palazzo Manfrini—Barberigo Pictures now at St Petersburgh—Studies of Heads—The Muses—Venetian Academy—The Stilling of the Tempest—Sebastiano del Piombo—See him in Rome and Venice—Works in our own possession—London—Edinburgh—Hamilton Palace—Pope Clement VII.—Mr. Harford, of Blaise Castle—Marquis of Lansdowne—Works in the Lourve and at Berlin.

The significant augmentatives of Italian speech are not often used in compliment—they are more frequently the expression of disapproval; even the excellent Masaccio received that well-known extension of his own name, "Maso,"[†] rather as a good-humored reproach for his neglect of externals, and for the effect of that negligence on his personal appearance, than as an acknowledgement of his greatness, which all were yet ready to admit. But with Giorgione the case was different: if the names of Giorgio Barbarelli, derived from his family and sponsors, have been all but forgotten in the more familiar "Giorgione," that last recalls no mere eccentricity, no peculiarity of habit—the appellation was assigned to him by common consent, because it well expressed the greatness and distinction attached to his whole being mental and physical. The stateliness of his lofty statue, and the grandeur of his person, no less than the deep seriousness of his mind and the warmth of his heart—the latter giving unusual beauty to features not otherwise remarkable—these all rise to the pleased and grateful memory at sound of that name, Giorgione; there is accordingly, but one feeling and one opinion as to the great and distinctive characteristics of this beloved master; "admirable," "noble," "sublime;" these epithets are applied, and justly, to other painters by the coldest of our critics, nor are they refused to Giorgione—but to him there belongs, moreover, a yet dearer distinction; one that all true lovers of Art have agreed to accord him, and that without a dissentient voice. Loving—as all we know of him occurs to prove—much, also has he ever been loved; you have but to open the first good authority, contemporary or modern, that may lie beneath your hand, to be persuaded of the fact. Nor will any be surprised at this who reflect on the character of his works: remembering the elevation of thought that attracts, the depth of feeling that binds us, to this earnest master, all will perceive that he who loves Giorgione can well render his reasons for that love.

Endowed with equal, nay—and that in the grandest essentials—with superior powers of mind and finer qualities of heart than had been assigned to his justly renowned compatriot and condisciple, Titian, what might Giorgione not have done had length of days been added to the rich store of his gifts? It is too much to believe that the downward tendency, of which, even in his day, certain symptoms had become apparent, might have been arrested in its course had Giorgione (the ordeal of his fiery youth passed through) been permitted to settle into the wise and genial worker that he must have proved in those fairest fields of Art towards which his best nature ever led him? We think not; the first place among painters would assuredly have been the conquest of his maturer age, had that maturity been permitted. But little more than a third of Titian's appointed period was that accorded to Giorgione; yet what evidence has he not left us of the much that was to come?

"He looked on life and nature with the gaze and the feeling of poet and painter in one," is the observation of one German writer—a simple truth; nor is the poet ever to be divided from the painter, if either would speak effectually to human hearts. "The figures of Giorgione may be said to represent an exalted race of beings capable of the noblest and grandest efforts," remarks another; and he, too, is right; the consequence was one that could not fail to follow from that elevation of nature distinctive of Giorgione. Enumerating the peculiar characteristics of various masters, and comparing the heads painted by certain of the greatest among Italian artists, one of our own writers, speaking to the same effect with those of Germany cited above, remarks that in the heads of Giorgione many of the best qualities lauded in all others are combined; and says in conclusion, "then what power of thought, what intensity of feeling, will be found in all that Giorgione has left us"—or words, to that effect, for the writer quotes from memory, and may not be strictly accurate as to phrase, although certainly true to the thought. Such instances might easily be multiplied, but let those given suffice.

The too early death of Giorgione is attributed by some writers to plague, but there is no record of any plague prevailing in Venice during the year 1511, which was that of his decease; and Ridolfi, who had ample means for ascertaining the truth, assures us that he died from a different cause, which he describes as follows:—The Florentine, Pietro Luzzo, called also Zarotto and Morto da Feltre, having repaired to Venice in company with Andrea di Cosimo, was there entertained with frank kindness by Giorgione, who did him numberless good offices, and finally admitted the stranger to his intimacy and confidence. But Pietro repaid those benefits with the basest ingratitude; he found means to estrange from Giorgione the affection of a beautiful Venetian, to whom he was but too passionately attached; the false friend and faithless betrothed are even said to have fled together, and the double wound thus inflicted proved fatal,—the ever-lamented life of Giorgione was cut short not by disease, but by grief.

Lanzi, alluding to the portrait of Morto da Feltre, pointing to a death's head, now in the Uffizii, and said to be painted by his own hand, has the following:—"Io penso che sia effigie di un nomo incognito, il quale si fece figurare con un dito rivolto verso un teschio di morto, per risvegliare in sè, qualora il mirasse, il salubre pensier della morte; or nel nostro quadro, il teschio capriccio-samente fu preso per simbolo del nome Morto, e si é dato per ritratto e opera del Feltrese."[‡] And the learned Abate is doubtless right; he remarks, further, that the portrait of Morto, as given by Vasari, is altogether different from that of the Uffizii; a fact of which any one may convince himself who will compare the latter with that in the second or subsequent editions of the *Vite.*[§]

Few traces of the frescoes executed by Giorgione now remain. The "siroccos and salt winds" might have spared these priceless bequests of a great spirit, to charm centuries yet more remote than is our own from the period of the master; but what the elements have respected man destroys; change and "restoration" of the palaces once proud to bear these trophies, have all but effaced them; some few poor remnants do indeed remain, but we cannot hope that even these will long escape: this is the more to be regretted, because, athough but fragments, they are of striking beauty, and bear ample testimony to the value of all we have lost.[||]

The genuine works of Giorgione being confessedly rare, and many bearing his name which have no claim to the honor, England may hold herself fortunate in the possession of several pictures, the origin of which is undoubted. In collections open to the English public they do not abound; the authenticity of the "Peter Martyr," bearing the name of Giorgione, in our National Gallery, has been questioned: the picture at Hampton Court, although bearing the name, and admitted to be a fair production of some good imitator of Giorgione, is not believed to be by his hand. The Fitzwilliam Museum, at Cambridge, is fortunate: the "Adoration of the Shepherds," now there and formerly in the Orleans Collection, is without doubt an authentic work of the master—"Edel in den Karakteren, zumal das Kind sehr schön glühend und gesättigt in der Färbung, dies—aus der Gallerie Orleans stammende Bilde"—as above said—"ist in allen Theilen dem Gemälde mit Jakob und Rahel in der Dresdner Gallerie nah verwandt."* The Royal institution of Liverpool is in possession of a portrait, said to be that of Guidobaldo, Duke of Montefeltre. This work, not known to the present writer, is affirmed by competent authority, to exhibit the elevated conception, and deep golden tone of color, proper to Giorgione.

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[*] Continued from page 196, No. vii.

[†] "The son of the notary, Ser Giovanni di Mone (Simone) Guidi, of Castello San Giovanni, in Val d'Arno: he is inscribed in the old book of the Guild as *Maso di* Ser Giovanni di Chastello Sangiovanni, MCCCCXXIV." Gaye—"Carteggio inedito d' artisti dei Secoli, xiv. xv. xvi." 1, 115; see note to Mrs. Foster's translation of Vasari, vol. i. p. 402.

[‡] Storia Pittorica, vol. i. p. 170. Edit. Pisa, 1815.

[§] See the portrait of Morto, in the edition of Florence, 1822, vol. iii. p. 449.

[||] See Zanetti—"Varie pitture a fresco de' principali Maestri Veneziani," where some relics of these lost treasures are preserved.

There is a small portrait of a man by the same master in the Edinburgh Institution; we name it here chiefly because the work is of the few accessible to public inspection, the coloring, as a whole, not being such as to attract the lover of the master from a distance, as does that of every other work of Giorgione with which we are acquainted; but there is no question of its being by his hand. At Oxford there is a valuble drawing, more to be prized in our circumstances, if of undoubted authenticity, than even the finished work: this is a landscape with figures. An exquisite and certainly genuine example of Giorgione's drawings will be found at Chatsworth—"Christ and the Woman of Samaria;" There are, moreover, said to be two small ones at Lowther Castle—the writer has not seen them, but hopes to verify the statement, in fact, at no distant period. There are others in the collections of our nobles and gentry: the horseman at Stafford House, the knight in armor in the collection of the late Mr. Rogers, two pictures in the Ashburton collection, the portrait of a man at Devonshire House, and the daughter of Herodias, in the possession of Mr. Holford, though in some cases injured by restoration, are all within reach of the English lover of Art. At Thirlstaine House, the seat of Lord Northwick, near Cheltenham, is a work by Giorgione—the "Woman taken in Adultery," some of the best qualties of the noble master authenticate this picture, which is of great value, the expression given to the woman is most touching, her attitude, no less than the face, exhibit the deep humility proper to her offending condition. There is a precious fragment at Castle Howard; but in no English gallery have we a picture more profoundly interesting to those who love the master, than is the "Shepherd," in Lord Landsdowne's collection at Bowood—that shepherd presenting the portrait of Giorgione himself, as all who remember the profound depth of feeling in "the dark glowing eyes," of that in the gallery of Munich, will at once perceive.

If Giorgione was not handsome, as authorities aver, he was much better than merely handsome: in his face is that best beauty, earnest thought, and true warm feeling. Returning ever and again, as one does to the Munich portrait, the shadow of that cloud thrown over his devoted life by the traitorous Feltrese, seems even now impending; you indignantly refuse to believe that the forgotten vows of a worthless woman can have wrecked that noble being; but when the envenomed wounds of friendship spurned, and confidence betrayed, are added to the sum of wrong, you comprehend how that heart, so tender, should burst with the weight of its anguish, and you seek relief from the intolerable pain of the recollection, in vengeful rage against the wretch who could thus reward his benefactor. Ever commend me to a good fit of anger if the eyes are blinded by tears for a grief that cannot find remedy; most effectual is the heat of it for absorbing those drops which you *will* not suffer to fall, because the cold and uncaring are around you, and never does one want that relief when the thought of Morto is presented. Not *his*, the beautiful head of the Uffizii—do not believe he looked like that—no! not at any moment of his evil life. The hard, stony glance, the coarse mocking expression of mouth, of the Aretine portrait, each aiding the other to mar a face made up of features else not unhandsome, these may indeed belong to Morto, and so it is that Vasari gives them. For the woman, let her pass—a creature fit only to waken the contempt of a moment and be forgotten: grief and shame, that such as she was could give pain to the heart of Giorgione! But I hold firmly to my belief—from wounded friendship, not slighted love, came the arrow that found the joint of his armor: one grudges to him who so treacherously sent it, the death, but little merited, which he found, say his compatriots, soon after, on the field of battle. Yet is there one thought that might help us to part in charity even with Morto da Feltre. After betraying his friend, he took service with the Venetian republic, though Florentine by birth, and with no interest in its quarrel: did he hope thereby to expiate the crime that blackens his name? or was it that his life had been rendered unendurable by the recollection of that wrong? Let us believe in his remorse, and we shall not so ferociouly grudge him his grave.

To the works of Giorgione preserved in the Louvre, we can do little more than refer the reader; they are happily well within his reach, and we must content ourselves with reminding him that he will there find examples certainly genuine. One of these may safely be accounted among the most precious bequests of the lamented master—not for its beauty only, although that is extraordinary, but because it is one of those most characteristic of himself, and gives evidence of qualities so high as to make the beholder more than ever regret the early bereavement suffered by art in his person. This work alone would largely repay the traveller for his journey to Paris; yea, even in *our* suffering days, when those hard-hearted, and well-named "iron ways," have reduced all travelling from one of the best of pleasures to a sore and heavy penance. But there is besides a Holy Family in the Louvre, with St. Catherine, St. Sebastian, and the figure of the donor, a work of the master's early time; there, too, as many will remember, is that picture, said to be a "portrait of Gaston de Foix;" and which ows its origin, as did another described by Vasari, to the well-known discussion between Giorgione and certain sculptors, as to the alleged inability of the Painter to present his subject in more than one aspect at one time, whereas the Sculptor can exhibit the same form in various points of view, if the spectator merely walk around it. "This," says Vasari, "was at the time when Andrea Verocchio was working on his horse of bronze; and Giorgione affirmed that the painter could exhibit all the different aspects of the figure at one glance, and without giving the spectator the trouble of walking around it." This he accomplished, in a jesting fashion, by painting a nude figure, with the back turned to the spactator, and with a clear stream at the feet reflecting the front. On one side was a highly polished corslet, which the figure depicted, having divested himself thereof, had laid at his left side where it served as an effective mirror. The profile on the right was reflected from a glass; and the work, says our author in conclusion, was "sommente lodata e ammirata per ingegnosa e bella."* Respecting the Daughter of Herodias receiving the Head of the Baptist, also in the Louvre, and attributed to Giorgione, competent judges express more than a doubt.

The meeting of Jacob and Rachel, considered to be one of the finest of Giorgione's works, and sometimes called his masterpiece, is in the Dresden Gallery. A fine valley, pleasantly embosomed in surrounding hills, is the scene of this greeting; and if the costume and accessories—those of the painter's land and time—be not in strict accord with one's preconceived notions, yet the disappointment at first felt on approaching the picture is not of long continuance; the truth and earnestness of expression in the heads and attitudes of the principal figures, at once compel forgetfulness of those peasants of Friuli, by whom it is, in fact, that the Hebrew and his betrothed are here represented, and the highly-raised expectations with which the traveller approaches the picture, are in the end fully justified.

To the remarkable gift of forgetting, exhibited by our good friend, Von der Hagen, in the case of certain great Venetian painters, we have done ample justice: in the case of Giorgione he does *not* forget. Being at Florence, he falls into raptures at sight of a mere copy—by no incapable hand, but still only a copy—of that boast of the Manfrini collection, the lovely lady, touching her lute, whose imperial beauty according to one of his compatriots, "commands the whole world to bend in adoration before it." "Since the time when I first beheld her in the Manfrini Palace at Venice," says Von der Hagen, "has she constantly been present to my thoughts—so life-like is she, so entrancing, so absorbing, that the impression I then received continues in all its force, nor will it ever be effaced; no, never shall I forget her while I have being." A truly honorable "amende" for that curious lapsus of memory recorded above, dear denizen of your most praiseworthy city, Breslau; but there is even more:—"the rich violet-colored robes, with all besides of that costly oriental dress bestowed by the lavish hand of the master on his labor of love," are set down on your tablets this time, among the "never to be forgotten," wherefore you shall hear no more of that other matter—we forgive you for it, at once and for ever.

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* "Noble in the characters, the child especially very beautiful; the coloring full and glowing. This picture resembles in all respects the meeting of Jacob and Rachel in the Dresden Gallery."—See also Dr. Waagen's "Treasures of Art in Great Britain," vol. iii. p. 446.

* Opere, vol. iii. p. 40.

Among the most admired and best authenticated of Giorgione's works is the enthroned Madonna, painted, as is believed, for the Venetian family Soranza, but purchased from that of Balbi, who obtained it by inheritance, for the collection of Mr. Edward Solly. In certain parts the manner of this work recalls that of Giorgione's master, Giovanni Bellino. St. Peter and St. John the Baptist stand on the right of the throne, St. Sebastian and another saint occupy the left; these figures have all the grandeur of character and earnest depth of expression peculiar to Giorgione. The landscape is strikingly beautiful—"Mit dem glühend leuchtenden Horizonte," says a German writer, "es gehört zu dem schönsten, was man dieser Art aus der venedischen Schule kennt." The breadth and fulness of the treatment are equally remarkable, the coloring is deep and glowing, and in all essentials this picture bears a manifest resemblance to the few paintings known to be from the hand of Giorgione—that, for example of St. Mark stilling the Tempest, in the Venetian Academy.

The almost equally admired "Astrologer" of Giorgione is, or was, in the Manfrini Gallery. An old man, strangely habited, sits beside a marble table; there is a ruined fabric in front of his seat, and in a niche of the building a broken statue of Venus. Gazing into the distance, the Astrologer is holding the instruments of his craft in his hand. A woman stooping, or rather cowering to the ground, is playing with an infant laid before her on the earth, and near her is a young man in armour. In the distance there are soldiers resting beneath a tree. In the gallery of the Barberigo Palace (yielded, as our reader will remember, to Russian entreaty, and now at St. Petersburgh) was a treasure of inestimable value in studies of heads by Giorgione. Here also were the "Muses"—"Eine unchätzbare entzückende Darstellung der selig verschwisterten Göttinnen," says a writer of our own day, "vorzüglich anmuthig und poetisch ist die holde Emporblickende im Sternenkranze, die Musik; und Thalia die Schauspielkunst."

As regards the "Tempesta sedata dal Santo" mentioned above, and now in the Academy of the Fine Arts at Venice, heavy reproach has been cast on Vasari for that he, in his innumerable occupations, did commit the oversight of attributing this work of Giorgione to Jacopo Palma—as happened in his second edition, although in the first he had rightly ascribed it to Giorgione. From the life of Palma it is then that we will now take Vasari's description of the picture, and this, were it only to add another proof to those already adduced, showing that "praise of Venetian painters" does not "come reluctantly from his lips," as Fuseli—who should have known better, well informed as he doubtless was than to repeat that refuted calumny of some petulant, perhaps disappointed contemporary of the Aretine biographer—has somewhere said:—"Fece oltre ciò, per la stanza dove si ragunano gli nomini della Scuola di San Marco in su la piazza di San Giacomo e Paolo, una bellissima storia nella quale é dipinta una nave, che conduce il corpo di San Marco a Vinezia, nella quale si vede finto dal Palma una orribile tempesta di mare, ed alcune barche combattute dalla furia de' venti, fatte con molto giudizio e con belle considerazioni, siccome è anco un gruppo di figure in aria e diverse forme di demoni che soffiano a giussa di venti nelle barche, che andando a remi e sforzandosi con vari modi di rompere l' inimiche ed altissime onde, stanno per sommergersi. Insomma quest' opera, per vero dire, è tale e si bella per invenzione e per altro, che pare quasi impossibile che colore o pennello adoperati da mani anco eccellenti, possano esprimere alcuna cosa più simile al vero o piu naturale; atteso che in essa si vede la furia de' venti, la forza e destrezza degli nomini, il muoversi dell' onde, i lampi e baleni del cielo, l'acqua rotta dai remi, ed i remi piegati dall' onde e dalla forza de' vogadori. Che più? Io per me non mi ricordo aver mai veduto la più orrenda pittura di quella, essendo talmente condotta e con tanta osservanza nel diseguo, nell' invenzione e nel colorito che pare che tremi la tavola come tutto quello che vi è depinto fusse vero."* This is followed by certain technical remarks, all in the same spirit, and to the praise of the painter, showing Vasari's sense of the magnitude of those difficulties overcome by Giorgione in this work, with his perfect willingness to admit their existence, and his readiness, not to say eagerness, to give all due praise to him who had obtained the signal success he so warmly celebrates.† Such passages—with that given by Lanzi in our last chapter—should set at rest the question of justice done by Vasari to Venetian painters; but that they will scarcely be hoped.

Lanzi, speaking in praise of the work, alludes particularly to the figures of "tre remiganti ignudi, pregiatissimi pel disegno, e per le attitudini."‡

Vasari appears to be slightly mistaken in his description of one part of the subject of this work. The moment chosen by Giorgione is not that of the conveyance of St. Mark to Venice, but of a storm excited by demons, and allayed by the power of St. Mark, St. George, and St. Nicolas. The story, as related by the Venetian chronicler, Marino Sanuto, is as follows:§—"On the night of the 25th of February, 1340, a storm, such as had never before been seen at Venice, was raging around the city, when a poor fisherman, laboring to secure his barque on the riva di San Marco, was accosted by a stranger, who desired to be put over to San Giorgio Maggiore." The fisherman long refused, but won by promises and entreaties he finally consented to make the effort, and rowed the boat safely to San Giorgio; here a second stranger entered, and two required to be rowed to San Nicolo del Lido, where they found a third awaiting them on the shore. The three thus united commanded their boatman to pull beyond the castles into the open bay. Scarcely had they gained the sea before they perceived a galley approaching with the rapidity of a bird on the wing: that vessel freighted with demons, who were obviously proceeding to effect the downfall of Venice. Then the three companions rising solemnly in their boat, made the sign of the cross, when the demons were put to flight, the sea became peaceful, and the unknown bade the fisherman returned to the delivered city. Here they made themselves known to their boatman, declaring themselves to be none other than SS. Marco, Giorgio, and Nicolo, who had come forth to save Venice from being overwhelmed by the sea. In proof of the fact, which they bade the fisherman declare to the Signo-

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[*] See "Opere di Giorgio Vasari," vol. iii. pp. 481, 482. Edit. Firenze, 1822.

[†] Here follows a free translation, with some little abridgment, of the above, for any who may prefer to see it in English. "He likewise painted a most beautiful historical picture representing a barque wherein the body of St. Mark is being conveyed to Venice. It is a dreadful tempest, the ships are tossed and driven by the fury of the winds and waves, all depicted with great judgment and the most thoughtful care—as are a group of figures in the air, with demons of various forms, all blowing against the barques in the manner of winds. Impelled by their oars, the ships labor in divers positions to stem the furious waves, but are on the point of sinking. At a word, this work is so well conceived, and so finely executed, that it seems impossible for color and pencil, however powerful the hand employing them, to express anything with more truth of nature. The fury of the winds, the strength and dexterity of the mariners, the movement of the waves, the lightnings of heaven, the water broken by the oars, and the oars bent by the waves or by the strength of the rowers, all are painted to the life. What more? For my part I do not remember to have seen a more impressive picture than this—all being so truly represented, the invention, the design, the coloring, being all so equally cared for, and the whole so complete that the canvas seems to quiver as it might do if everything depicted were reality."

[‡] Lanzi—"Storia Pictorica della Italia." Tomo secondo, parte prima. Scuola Veneta.

[§] See Mrs. Foster's translation of Vasari's "Lives, &c," vol. iii. p. 376.

ria, St. Mark then presented his ring, the delivery of which to the senate of Venice has been selected by more than one of her painters as the subject of his pencil.

Giorgione painted pictures for his own country, the March of Treviso; one of them—executed for that Vedelago which disputes with Castelfranco the honor of having given birth to the master—is the "Finding of Moses," now in the Brera, a gallery much visited by our people; a second is the "Entombment," still at Treviso; but "the composition is shown," says Sir Charles Eastlake, "in a woodcut which the reader will find in the English edition of Kugler's Geschichte der malerci.'" *

That a very high place among Venetian masters is justly due to Sebastiano del Piombo, the most distinguished disciple of Giorgione, will be obvious even to such as have seen no more than the works that form so important a part of our National Gallery; but yet more eminent would have been the position assigned to that painter, by right of his extraordinary powers, had he more steadily devoted them to Art. But Sebastiano resigned himself," as we know, to social enjoyments, and abandoning his native Venice, passed the greater part of his life in Rome; his later years being spent, unhappily for Art, "in making up to himself, by all permitted and legitimate indulgence, in the varied delights of that delightful city, "for the weary nights and laborious days previously given to his studies."† Richly endowed, indeed, must Sebastiano Luciani have been by nature, since with this feeling, that nights given to Art, and days consecrated to the exercise of her well-repaid toils were "dreary and fatiguing," he could yet produce such works as we still admire; and great would have been the profit to Art, and perhaps to himself, had he not so early been able to "give himself good cheer."

The question how far Michael Angelo took part in the "Lazarus" of our Gallery has been long since set at rest, nor is there place for it here were that otherwise, neither do we meddle with the inquiry whether the portrait called that of Giulia Gonzaga be really the work for which Ippolito Cardinal de' Medici dispatched the master to Fondi "with four swift horses," to obtain sitting from the "lady, whose celestial beauties, treated by the hand of so accomplished an artist, give us a picture that may be truly called divine;"‡ all know these works and can examine them at their pleasure. We confine ourselves, therefore, to the mention of some few to be found in other collections. An altarpiece in the Church of San Giovanni Grisostomo, at Venice, with others, both in that city and in Rome, rise appealingly to remembrance, but we name those most easily attainable in preference. There is an Entombment in the Bridgewater Gallery, said, like the Lazarus, to be from a design by Michael Angelo. In the Royal Institution, at Edinburgh, there is a Bacchus and Ariadne, under the name of Sebastiano, but its authenticity is doubted. In the collection at Hamilton Palace are two paintings by this master: one, the portrait of Pope Clement VII., than whom a handsomer or more gentlemanly personage rarely filled the papal chair, is of his earlier and better period; the second, a Transfiguration, "showing in composition and drawing the unmistakable influence of Michael Angelo," it is of yet earlier date, being inscribed 1518, with the addition of a long sentence purporting that this picture was formerly presented to the Emperor Charles V.§ Three very fine works from the hand, of Sebastiano are in the possession of Mr. Harford, of Blaise Castle,—namely a Holy Family, a Pietà, and a study of a male head,—the first and last from designs, or in any case after the manner, of Michael Angelo. The Marquis of Lansdowne has a "Monk with a Skull," at Bowood, and there is a St. Sebastian in Lord Radnor's collection at Longford Castle.

In the Louvre they have one example, "Visitation of the Virgin," who is received by St. Elizabeth, while Zachariah is also approaching, and descends the steps to their dwelling. This work bears the name of the master, and is dated "ROMA, MDXXI;' thus proving it to have been executed before the fatal period of self-indulgent indolence had closed its leaden wing over the head of the artist, as indeed may be seen from the character of the work. There are four pictures by Sebastiano del Piombo in the Royal Gallery of Berlin: one of these is the Dead Christ supported by Joseph Arimathea—Mary Magdalen lifts the wounded head of the saviour, and regards it with sorrow. A second of these pictures represents Christ on the Cross; the other two are portraits—a branch of art in which this painter—following his master, Giorgione, by whose effective portrait in oil he was first made known to the Venetian world of Art—excelled all the artists of his time; it was, in fact, that wherein alone Sebastiano could finally be prevailed on to exercise his unhappily wasted gifts.

Ludovico Dolce, in his "Dialogo della Pittuora," relates a story to the effect that Sebastiano, having consented to retouch certain of Raphael's frescoes in the Vatican, which had been much injured by the soldiery during the siege of Rome, was conducting his honored compatriot Titian through the various chambers, at the time of that great painter's sole visit to the metropolis of Art, when the Venetian, remarking the changes thus produced, inquired, "What presumptuous and ignorant hand has dared thus to mar these heads?" whereupon Sebastiano "became of *lead* indeed," adds Ludovico, alluding to that office of "Keeper of the Leaden Seal," whence the name of "Del Piombo" was derived.* There seems reason to believe this anecdote a true story; yet we do not read it with the satisfaction which might be felt had Sebastiano been a vain or presuming person, but that was not by any means the case. It was in no spirit of overweening arrogance that he had laid hands on the ruined frescoes of the lamented master. Luciani was indeed a man of sense, who had many excellent qualities, his chief defect being that indolence, and self-indulgence before mentioned: yet was this a devouring leprosy never sufficiently to be deprecated, and in the case of the patient in question more particularly to be regretted, since but for that grevious disease of an unconquerable addiction to the pleasures of sense, he would, without doubt, have proved himself one of the brightest luminaries of Art.

THE PATENT LEATHER PROCESS.

PITTSBURGH, July 28th, 1857.

To the Editor of the Photographic and Fine Art Journal:

DEAR SIR,—I received your August number yesterday, and was very sorry to see a communication from a firm in Philadelphia, who are not ambitious of seeing their name in your Journal, commenting, I think, severely upon Mr. Stroud; but as I have no doubt he is able to take care of himself, I shall only refer to the paragraph that relates to the Patent Leather Process that I have communicated to you. The gentlemen above referred to say, they met with very indifferent success with the formula as laid down by me, and in fact could not work it. I myself have failed in the transfer of the picture occasionally, but it is very seldom, and it is only attributable to the collodion being rotten, and in being too much of a hurry in detaching the picture from the glass. My communication was intended for persons in the country, where they have not the opportunity of acquiring all the little improvements that are daily made in the art, and for their information. I would advise them to keep a small bottle of collodion expressly for that purpose, thickened by the addition of more gun cotton, and then reduce it with *ether alone* to the proper fluidity. With regard to purchasing the process, I do not think any one need be ashamed of purchasing information that may tend to the advancement of our art, (for I purchased the process myself and then improved upon it and then gave it to the public through your Journal free gratis), and if the gentleman referred to knew of any thing better, I think it *would have been more commendable on their part to have done likewise*, for how are we to improve ourselves or others but by the exchange of our experience and ideas through a work that is devoted exclusively to the advancement of our beautiful art The reasons that induced me to make the process as far as I knew public, was, that a gentleman from the country informed me that he had paid $25 for his information; I thought it was an imposition and I would, as far as laid in my power, prevent others from being imposed upon in like manner.

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* See "Schools of Painting in Italy," vol. ii. p. 433.

† "Se ne stava riposando," says Vasari, "e le male spece notti ed i giorni affaticati ristorava con gli agi e con l'entrate." Opere, vol. iii. p. 690; English translation, vol. iv. p. 68.

‡ See Vasari, as above.

§ See "Treasures of Art in England," vol. iii. p 305.

* "See Dialogo," as above cited, p. 11: Vienzia, 1557.

There is also a communication from Mr. Daniels of Cold Spring that I wish to refer to; and that is the increasing wrong imposed upon our located operators, by the peddling of the *Union case* through our cities and country. Where does this innovation spring from? Is it the manufacturer; or the large Eastern stock dealers that sends these peddlers over the country? I wish Mr. Editor you would ascertain if you can, where this evil springs from, and rebuke the instigators of this picayune business, for if they have commenced with the Union case, there is no telling where it will stop.

I am, Dear Sir, yours, &c.,
JOHN ROGERS.

From the London Art-Journal.

OXFORD IN THE STEREOSCOPE.*

Seldom has there been a series of views so entirely interesting as this—the most successful effort that has yet been made to render the stereoscope, not only a source of intense enjoyment, but a veritable and effectual teacher of Art. The pleasant companion of the drawing-room has ceased to be "a toy;" it has become an instructor: lessening in no degree its power to amuse, it is now a means of education, the influence of which it would not be easy to overrate, inasmuch as it induces thought in lieu of idleness, and makes leisure profitable. No happier theme could be found on which to employ the charming art of photography than that of the venerable and beautiful city of Oxford; it appeals to so many sympathies; is "a memory" to thousands whose early associations are with its

"Domes and towers,
Gardens and groves;"

and who, in these records of its peculiar graces and beauties, may revisit—by no great strain of imagination—the places in which studious youth was passed in preparation for ardent manhood, and the armour was girded on which gave vigor and power for the battle of life.

We can conceive few pleasures equal to that which must be enjoyed by him who resorts to this elegant and instructive "toy" for memories of long past days: every familiar scene is brought before him he knows there is nothing to deduct for the fancy of the artist—nought has been added, nought abstracted; stern but attractive truth is there, in each one of these many pictures: if the "walks" are altered, it is only because time has added somewhat to the height and breadth of the trees that give augmented shade to the paths he has trodden; if there be some change in the walls and gateways and towers he so well remembers, it is only because age has its influence on all outward things. He may again enjoy Oxford—"that faire citie, wherein make abode so many learned impes"—and enjoy it thoroughly; untroubled by that "tumultuous hope" which here especially "toils with futurity."

If the soldier may "fight his battles o'er again" when tracing on the map the march of armies, surely the scholar has higher and nobler triumphs when revelling in the retrospect—in cloisters pale in venerable halls, beneath stately porticoes, in silent galleries, in sombre quadrangles, by solemn altars, in quiet gardens, in unbrageous walks; every step or stone of which is as a familiar friend, entitled to a heart-greeting; and welcomed by memory without a thought of reproach.

But considered merely as beautiful works of Art, and entirely apart from any association with a life of intellectual labor here commenced, this series of Oxford views has abundant attractions. The subjects are especially calculated for display by the stereoscope; they are precisely of that nature which are thus made to "tell" best; buildings of striking architecture and order; antique gables and gateways; "bits" by the water-side—the rich banks of the King of Island Rivers; walks amid trees terminated by quaint temples; ancient walls, embattled, which time has "mouldered into beauty;" bridges and streets, unrivalled anywhere with the several accessories which give peculiar character to each. The themes here selected will indeed be understood by all who are acquainted with the venerable city; while those who are strangers to it will at once feel that a source more productive of valuble materials could not be found in England, not perhaps in the world.

The task of thus multiplying these grand attractions of Art and Nature has been confided to safe hands; no artist could have produced them more satisfactorily than M. Delamotte, while in Mr. Alderman Spiers, he found a valuble guide—for to him every spot of interest is known. The photographist and the publisher acting together and in concert, have produced a series which cannot fail to give delight while affording information, they have made the pleasant and graceful "toy" a valuable means of education.

From the London Art-Journal.

MOSAICS, MARQUETRY, BUHL, PARQUETRY, &c.

BY ROBERT HUNT.

At a very early period man appears to have produced works of ornament by cementing together pieces of differently colored stones and woods. The primary efforts in this direction were naturally rude, both in construction and in design By degrees it became apparent that elaborate designs could be produced by this process, and hence we find geometric patterns of considerable intricacy were introduced. Eventually the art was brought to such a degree of perfection that the most delicate pictures were produced by it, with all the gradations of shade most beautifully preserved.

The origin of the term *mosaic* is doubtful. By some it is supposed to have been derived from *Moses*, who has been regarded as the inventer of the art—for this, however, there is no satisfactory evidence: others derive the term from *musa*, in the sense of beauty or elegance; while some, with some probability, refer the term to *museum* (as signifying a grotto sacred to the Muses), many of which places were ornamented in this manner. The Italian *musaico* evidently originated from the word *musaicon* of the Byzantine Greeks; and the French *mosaique* appears to be derived from the same source.

Under the same general term we find included, not merely the process of cementing together fragments of stone, cut into some determinate form but also the production of words of Art, by inlaying, and in some instances by enamelling. Although the distinctions are in many cases to be drawn with much difficulty, yet, strictly, the term *mosaic* should be restricted, to the art of producing patterns or pictures by uniting together small pieces of stone or wood.

Mosaic-work had its origin, with many other ornamental arts, in the East; but we know not to what nation to refer its introduction. It is not improbable, looking at the luxury, sensual in every particular, of the chiefs of the ancient oriential empires; looking at the barbaric splendour with which the wealthy then surrounded themselves, that this kind of ornamentation may have arisen amongst them. It is true that *mosaics*, in the sense to which we restrict the term, have not yet been discovered in the disentombed palaces of the oriental kings: but both Babylon and Nineveh have furnished us with examples of enamelling, which assimilate to the mosaics which were so beautifully made in Byzantium.

From the East the art passed to the Greeks, by whom it was brought to a high degree of perfection, and from them it extended to the Romans about the time of Sylla. With the increasing luxury of this great people, we find an extension of every art which could be regarded in any way as indicating the possession of wealth. Not merely was the construction of mosaics of every kind largely encouraged,—since the time expended upon even the simplest work of his kind was considerable, and hence the product costly,—but the value was enhanced to an enormous extent by the introduction of the rarest gems, colored glasses,—then rare and expensive,—and even the precious metals.

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* Series of Views of the Public Buildings, Colleges, Gardens and Walks of Oxford; photographed by P. H. Delamotte, F.S.A. Published by Spiers & Son, High Street, Oxford.

Wherever the Roman arms opened up the paths along which Roman civilisation was to spread, we find the evidences of Roman luxury and splendor indicative in the ruins which time has left us to tell their instructive story. Temples, and palaces, and tombs, are equally marked by productions of the class we are considering, either on their pavements or on their walls. Throughout Italy examples of mosaics, in all their forms, are sufficiently common; and even in this country we have some choice examples, marking the period during which our Island was a Roman colony. When in the fifth century the arts and sciences were driven from Italy, by the distracted state of the country, this art was preserved by the Byzantine Greeks. For several centuries the production of mosaics was confined almost entirely to this people, and the mode in which they employed the art is well illustrated by the copies of characteristic works which are to be found in the Byzantine Court, in the Crystal Palace at Sydenham. In the thirteenth century it was restored to Italy, and being peculiarly suited to the Italian character, it rapidly advanced to its highest degree of perfection. Clement VIII., at the commencement of the seventeenth century, had the whole of the interior of the dome of St. Peter's ornamented with this work. At this time valuable paintings appear to have been first copied in mosaics with extraordinary care; the Martyrdom of St. Petronilla, by Guercino, and Domenichino's Communion of the dying St. Jerome, were, amongst other great artistic productions thus treated. The object in these cases was to secure for ever, in an unchangeable and consequently imperisable material, the productions of the highest Art. The art is said to have taken this direction from the discovery of a new cement, by Giambattista Calandra, which secured the most perfect adhesion of the pieces, one to the other, and also to their bedding. In the eighteenth century a school for mosaic was opened in Rome, by Peter Paul, of Christophoris, and many of his scholars attained to the highest degree of excellence. Such is a rapid sketch of the progress of the art, of mosaic, advancing slowly, but steadily, from the rude design made up of but roughly formed stones to the most perfect copies of the master-works of Art.

It may not be out of place, as showing the early perfection obtained by the Romans in the art of mosaic, to describe one or two of their productions, of which we have the examples amongst us. The Roman station of Corinium, the modern Cirencester, furnishes us with several choice examples. Professor Buckman, in his "Remains of Roman Art," thus describes one of the rooms discovered in digging a cellar:—"The form of the room would appear to have been a parallelogram, surrounded on four sides by an elegant labyrinthine fret of blue stones, the intermediate spaces being filled up with white freestone tessellæ. The space without the borders, judging from what remains, was entirely occupied by marine subjects. From what might have been the centre of the apartment is a portion of a wheel: being pushed by an attendant Cupid; this probably belonged to a chariot, which, from surrounding Neptunian objects, we might conjecture was that of Neptune himself. Another Cupid is riding on a dolphin, whilst portions remain of what was doubtless a well-drawn figure of a Nereid, siting on a dolphin of larger size than the previous one. The filling up of the field of the floor is occupied by the following subjects:—marine Dragons; the Sea-leopard; the Sea-horse; Fishes, in which the Congo Eel is conspicuous; the Lobster, Crab, Star-fish; spiral Shells of different species, and bivalve Shells. So that this room, when perfect, must have presented a complete cabinet of marine natural history. Some of the shells are admirably drawn; as an instance of this, we have the Tellina as an example of the drawing of a bivalve shell, with the yellow internal coloring faithfully imitated. Again, the idea of the fluidity of the medium in which the animals are disporting themselves, is finely given; the rotundity of the parts, and the smooth yet crisp outlines of the tails, in the varied motions of the sea-monsters, all betoken that freedom of action which can only belong to beings habituated to a movable element like water."

The materials with which the artists of Corinium had to work were but few. The following is the list given by Professor Buckman:—White—*chalk.* Cream color—*hard fine-grained freestone from the great oolite.* Gray—*the same stone altered by heat.* Yellow—*oolitic and Wiltshire pebbles.* Chocolate—*old red sandstone.* Slate color or black —*limestone bands of the lower lias.* Light red, dark red, and black—*terra cotta, from the clays of the districts.* Transparent ruby—*glass, colored red by the oxide of copper.*

Such examples as these show the state of advancement to which this art attained in Roman Britain; many other similar examples might be given if it were necessary to do so. In the natural course of this, we might expect that the introducing of ornamental work of this kind would lead to many modifications.

Shrines and altars were adorned—chiefly in the Byzantine style—regardless of cost. Stones glass, and jewels were employed in the process of inlaying, and the splendor of these enrichments of sacred spots was thought to mark the piety of the wealthy donor, who usually defrayed the cost as an offering to the church of his adoption. Upon these, however, it is not our purpose now to dwell. Eventually, in Florence, a new style of ornamentation arose, in which larger pieces of stone were employed than in the Roman mosaics. The Florentine style was attended with more trouble in the selection and workmanship than the Roman, as from the size of the stones used, perfectly colored pieces were difficult to obtain, and a considerable amount of labor was expended in shaping and fitting them to each other. The difficulties of the Florentine mosaic-work, and its great cost, led to the adoption of wood instead of stone—the naturally colored woods being employed in some cases, and dyed woods in others. The extravagance of Florentine work may be judged of by a statement of the materials employed, as given by Mr. Digby Wyatt:—"The materials employed are jasper of various colors—agates, chalcedony, lapis lazuli, and other stones rendered suitable by their colors, hardness, or polish. Oriental alabaster, giallo antico, &c., are also used, and are valuble from their beautiful color and polish, though less hard than the above: occasionally other substances, such as mother-of-pearl and coral are introduced. The grouud is sometimes made from *rosso antico*, but more frequently *nero antico* is used, and occasionally porphyry and other stones of eqtal hardness. The subjects formerly represented were principally scrolls and conventional ornaments, to which a taste for the execution of landscapes and architectural subjects, such as the Pantheon, the tomb of Cecilia Metella, &c., succeeded. The result was, however, unsatisfactory, as the inlaid agate-work, being entirely dependent for its color and gradations of tint upon the natural colors of the stone itself, is fit only for subjects involving simple forms and but few different tints. Flowers, foliage, shells, and vases, are the subjects now most frequently represented, and these are mostly made up in tables paper-weights, brooches, vases, &c." Such is the practice in modern Florentine work: many imitations—and most successful ones—of which are produced in Derbyshire and elsewhere. We propose in a future article to examine the present state of this ornamental art in this country.

The modern mosaic manufactory at Rome differs but little, as it regards its general manipulatory details, from the practices which prevailed in the seventeenth century.

The process now adopted at Rome is as follows: a metal plate of the require size is surrounded by a margin of about three-quarters of an inch in height; it is then covered for about a quarter of an inch in thickness with a mastic cement, composed of powdered Travertine stone, lime, and linseed-oil; when set, this is covered to the level of the margin with plaster of Paris, on which is carefully traced the outline of the picture intended to be copied: from time to time portions of the plaster are removed with a fine chisel to allow the insertion of small pieces of *smalto.* The *smalto* is composed of glass colored by different processes. It is prepared in circular forms, about half an inch thick, and about six or eight inches in diameter. Nearly ten thousand varieties of color are kept in readiness in the stores of the Papal 'Fabrica,' and from them the artist separates a piece of the required tint, which he brings into the shape he requires by placing the smalto upon a small metal edge, and striking it with a hammer of a similar form. The smalto is thus broken as far as possible into the form desired, and it is afterwards ground with emery powder upon a lead wheel until the precise size and form are obtained. The piece is then bedded in its proper position, having first been moistened with a little cement; and the process is repeated till the whole picture is finished, when it is ground down to an even face and polished. For the manufacture of minute mosaics the *smalto* is reduced into thin sticks or rods.

For this account we are indebted to the admirable report of Mr Digby Wyatt, on Furniture and Decoration in the Paris Exhibition. Those who are interested in knowing the details of the Process may examine it, and a fine set of Roman mosaics, in the Museum of Practical Geology.

To turn our attention to mosaics in wood, which, we have said originated in Florence, it may be stated in brief that *tansia* or *tarsia*, as it was called, was much used for the decoration of churches and palaces of the ecclesiastics and rich merchants of Florence, Sienna, and Pisa, as well as in their furniture in which great richness of ornament prevailed; "and," says the authority already quoted, "there still exists a series of pictures in the chapel of the Palazzo della Signoria, at Sienna, said to have been designed by Taddeo Bartolo, in the beginning of the fifteenth century, and executed in black brown, and light-colored woods."

Vasari informs us that the best works of this class were executed at Florence, and the Filippo di ser Brunellesco, and Benedetto de Mariano, were the chief artists in wood. Giovanni de Verona extended the art by giving artificial colors to the woods employed, by means of "waters—colored infusions—and penetrating oils;" to obtain high lights he was accustomed to use delicate slips of willow. From Italy the *tansia* or *tarsia* passed through Germany into France, where it received the name, by which it is generally known, of *marqueterie*, from *marqueter*, to spot. The museums of Dresden, Berlin, and Munich, contain numerous examples of the wood mosaics of the period of the Renaissance. In the sixteenth century Cologne became the centre from which a very large number of inlaid articles of furniture were spread over northern Europe and especially France.

In France, *Boule*, or *Buhl* and *Reisner*, were two celebrated cabinet-makers, who have given their names to peculiar varieties of inlaid-work which are well known. Buhl was born in 1642, and died in 1732: he was appointed to an office, "Tapissier en titre du Roi;" Reisner, in the succeeding generation, was appointed "Ebeniste de Louis XIV."

Buhl-work consists of inlaid veneers, and differs from marquetry in being confined to decorative scroll-work, frequently in metal; while the latter is more commonly used for the representation of flowers and foliage: the process of buhl-work will be described in a future article.

Reisner's work was of the most exquisite finish, both of adjustment and surface. His woods are frequently stained, but never to such an extent as to mask the play of light in the fibre. D'Alembert says the wood forming the base of marquetry was not cut down for the insertion of the ornament until after the veneer had been glued down to the surface of the work. This enabled the ornament to be sawn out rather full, and then adjusted to a microscopic joint by filling down the edges. It was in this way that those extraordinary fine lines too thin for the passage of any saw, were obtained, which seem so astonishing in the joints of Reisner's finest works.

Mosaics in wood were introduced for flooring probably about the same time as marquetry became employed for altar decoration. Floors of this description are usually termed *parquetry*, from the French *parquet*. Elms, in his definition of the term, says—" A species of joinery or cabinet-work, consisting in making an inlaid floor, composed of small pieces of wood of different figures." Since the term *parquet* signifies the bar in a court of justice, and the place close to the pulpit where the ministers and elders of a French Protestant church sat together, parquetry has been thought to owe its name to the fact of the flooring of these parts—the most sacred—being formed of inlaid woods. The name may, however, be derived from *parquer*, to pin up, as indicating the mode in which the pieces were fastened together. Marquetry is, however, commonly applied to the inlaying of woods for the decoration of furniture, representing generally fruits and flowers; while parquetry is used almost exclusively to signify wood mosaic flooring, or similar decorations, applied to the sides of an apartment. Usually, parquetry, or parqueterie, consists of thin pieces of differently colored woods, veneered upon some less expensive material. The cost of this kind of work was considerable, and its durability not great, owing to the thinness of the veneer, and the liability of it to break away from its base.

Our attention has lately been directed to the solid Swiss parquetry introduced into this country by the Messrs. H. and A. Arrowsmiths, of Bond Street. This manufacture is made solid throughout, and every portion of the ornamental woods which form the patterns is grooved and tongued together, and fastened with marine glue; this admits of its being fixed at once upon the joists when used for flooring. This parquetry, as its name indicates, is constructed in Switzerland. By steam saw-mills and other machinery the pieces of wood are cut, about one inch in thickness, and of the required shape; these are carefully tongued into one another, and, where it is possible, grooved together: in many cases solid lines of the pattern running through all the work. In this way the utmost degree of solidity is given to the parquetry. In France this new manufacture is largely employed; the châlet at the Bois de Bologne, near Paris, is fitted up with it; and the apartments at St. Cloud, which were occupied by the Queen and Prince Albert during their late visit to the Emperor of the French, were fitted up with the Swiss parquetry. It is our intention, in a future article, to describe the minute details of the manufacture of wood mosaics, and consequently of parquetry; we have only now, having sketched the progress of this Art-manufacture from the earliest period to the present time, to name a few of the important advantages of this novel solid parquetry. It is an inch thick, and solid throughout, the only difference in the two sides being that the upper one is rubbed down smooth and polished. It is excessively durable, being made of the hardest woods, well seasoned, as the oak and walnut, &c. Another special recommendation is its cheapness. In Switzerland, where labor and timber are plentiful, the designs in the softer woods costs 1*s.* per square foot, while the rich and handsomer patterns in hard woods are 2*s.* 6*d.* per square foot; patterns composed of both kinds of wood intermixed, 1*s.* 6*d.* and 1*s.* 9*d.* per square foot.

This parquetry has been employed not only for floors, but for ceilings and walls; and as it can be at once fixed in its place, all delays and inconveniences are avoided. The ball-rooms at the Turkish embassy, the entrance hall at Sandon Hall, and some parts of the House of Lords, are fitted with it.

There is so much to admire in the very chaste geometrical designs in which this wood mosaic is now made, that we argue from its introduction an improved taste in house decoration. We have seen at Messrs. Arrowsmiths' some charming designs of Swiss châlets, entirely constructed of this solid parquetry. We understand that these will very shortly be introduced to this country, when we shall take the opportunity of returning to the subject, and of presenting our readers with some of the designs in which it is proposed to construct them, and of giving additional information on all the varieties of mosaic manufacture.

THE LATE MR. SCOTT ARCHER.—A subscription in progress for the benefit of the destitute young family of Mr. Archer, the discoverer of the application of Collodion to photography. The list is headed by her Majesty's donation of twenty guineas, and is followed by another, from the Photographic Society, to the amount of fifty pounds. Mr. E. Anthony of New York, is the only gentleman who has as yet contributed any thing from this side the water. His contribution is $50.

From the Jour. of the Phot. Soc.

OBSERVATIONS UPON MR. MAXWELL LYTE'S METAGELATINE PROCESS.

BY MR. S. RADCLIFF FETHERSTON.

[Read before the Dublin Photographic Society, May 6, 1857.]

In offering a few observations to this Society upon the very interesting and, comparatively speaking, simple dry process, recently given to the public by Mr. Maxwell Lyte, I must commence by stating, that I shall not be able to improve upon the process as put forward by Mr. Lyte; but whether from want of space in the pages of the Photographic Journal, or from a supposition on the part of Mr. Lyte that all the readers of that paper are advanced photographers, I think he has not given us his process sufficiently in detail, and many amateurs, like myself, may take up the paper and fail.

I shall endeavor, therefore, to give you, in the most minute details, the plan I have adopted for working these dry plates.

1st. I use a bath made in the following manner:—

1—	Nitrate of silver (fused)	1 ounce.
	Distilled water	2 ounces.
2—	Iodide of ammonium	2½ grains.
	Iodide of potassium	5 grains.
	Bromide of cadmium	2½ grains.
	Distilled water	1 ounce.
3—	Nitrate of silver (fused)	10 grains.
	Distilled water	1 ounce.

Mix Nos. 2 and 3 solutions by pouring No. 2 into No. 3, and having well washed the precipitate upon a filter, add it while moist to the strong solution of nit. arg., No 1, to which add 13 ozs. and 5 drms aq. dist. and 4 drops of pure glacial acetic acid; leave this bath for a night in a bottle, in the morning filter, and add 3 drms. of alcohol, sp. gr. 800.

Collodin:

Pure ether (not methylated) sp. gr. 730 to 750	20 ozs.
Alcohol sp. gr. 800	8 ozs.

To this add 64 grains of good soluble paper, and 64 grains of good cotton.

Shake the collodion well until the pyroxyline is thoroughly dissolved; allow it to stand for two or three days, and then draw off the clear collodion with a siphon: collodion, for the dry process particularly, is the better for having been some little time made, provided it be kept in a cool dry place.

Iodizing solution:

Alcohol (sp. gr. 800)	4 ounces.
Iodide of potassium	64 grains.
Iodide of ammonium	32 grains.
Bromide of cadmium	32 grains.

The iodides and bromides should be obtained particularly pure; the iodide of potassium should be recrystallized from hot alcohol Reduce them to powder in a glass mortar, and add them to the alcohol; keep this solution in a stoppered bottle; it is better to make it as required, but it will keep some time.

Iodize 8 ozs. of collodion at a time thus: in a clean stoppered bottle place a sheet of silver leaf (the ordinary size sold in white books), and drop upon it 8 drops of strong tincture of iodine; allow it to remain for five minutes, and then pour upon it 7 ozs. of the plain collodion, made by the above formula, to which add 1 oz. of the iodizing solution; shake well together, allow to stand for a night, and then draw off with a siphon. I have no hesitation in pronouncing this collodion to be the best I have ever tried, for both landscapes and portraits, it has great keeping qualities, and is very sensitive, and for that reason particularly suited to the dry process; when about to use it, I generally add 10 minims of pure chloroform to each ounce of iodized collodion.

With respect to the metagelatine, I have found a difficulty in procuring the pure white gelatine, recommended by Mr. Lyte, but after many trials I found that Nelson's patent gelatine will answer the purpose, using 1¼ oz. instead of 1½ oz., as mentioned in Mr. Lyte's formula. I have found it necessary to use more sulphuric acid than 60 minims, but this may of course vary with the strength of the acid. After the second boiling (the acid having been added), I generally find the metagelatine complete, but I boil a third time, and while boiling, add 2 drms of alcohol, sp. gr. 800, and boil for 3 minutes; when cooling, I add precipitated chalk in excess until all appearance of effervescence ceases; I then heat slightly, and filter through filtering paper, while still hot, which is much less troublesome and more effectual than squeezing through a linen cloth, as suggested by Mr. Lyte. It is sometimes, but rarely, necessary to filter a second time; I then dissolve 4 drms. of fine honey in 4 ozs. of distilled water, and filter it into a bottle containing 5 ozs. of the metagelatine; I then add about 1 drm. of alcohol, sp. gr. 800, and the solution is ready for use. I may observe, that without the alcohol the solution will have a putrid odor so soon as cool; with the alcohol it keeps for some time; should it become cloudy, boil, add a little more alcohol, and filter.

Having now the collodion bath and preservative solution, procure accurately cut plate glass, and grind $\frac{1}{16}$th of an inch of the upper edge all round; clean with dilute nitric acid.

I use a drying-box for the plates, which is merely a square tin box with a reservoir for boiling water, underneath which there is a stand for a spirit-lamp: having filled the dish with boiling water, I line the drying-box with clean white blotting-paper, and having darkened the room with the greatest possible care, so that perfect chemical darkness is attained, I proceed to coat my plates by the light of a small lamp surrounded with yellow calico.

When removed from the bath, I drain the plate pretty closely, first, on the edge of the bath, and then standing on one corner upon blotting-paper; but I am careful that the plate should not dry in any part.

I then attach a plate-holder (all the coatings of the plate must be performed upon separate holders), and pour the metagelatine on in the manner described by Mr. Lyte. I use two small precipitating glasses, one always to have fresh metagelatine in it, and the other to receive the old solution when poured off the plate; the first coat must always be poured away altogether, and not returned to the measure; the second and third coat (three will be sufficient) may be poured into the second measure, and may be used for the first coating of the subsequent plates, always giving the second and third coating from the fresh metagelatine: thus a very little of the solution will last a long time. When drained from the metagelatine, stand the plate on end in the drying-box, keeping up a moderate heat by occasionally lighting the spirit-lamp underneath; but if too much heat be applied, the plates will blister and be spoiled.

I find these plates wonderfully sensitive, the exposure in sunlight rarely exceeding a minute, with a Ross's stereoscopic single lens, 4½ inches focus, which has, as you are aware, a very small aperture: in strong evening diffused sunlight, I should say forty seconds would produce a very intense negative. I use a very small camera, a dark box and black bag with yellow window; the whole may easily be carried by one person.

I recently took a few prepared plates with me to the county of Westmeath, which I exposed there, and on my return to town a few days afterwards, developed; they all turned out good negatives, some, however, being a little over-exposed, but by stopping the development at an early stage they printed well. There are a few specimens of my stereoscopic prints upon the table, most of them having been obtained by the dry process.

The development must be carried on in perfect chemical darkness. I place the plate upon a holder, and keep pouring water over it for some minutes, until the gelatine is thoroughly softened: if this be not done, red stains will appear all round the plate.

The developer I use is as follows:—

In a graduated measure, place

Distilled water	2 ozs.
Pyrogallic acid	½ drm.
Glacial acetic acid	2½ drms.
Formic acid	½ drm.
Alcohol (800)	6¾ drms.

Then fill up the measure to the 5-ounce mark with distilled water.

For use add 1 drm. to 7 drms.

I pour this upon my plate as soon as the washing is complete, and after, I pour it off and on two or three times, I add 6 drops of a 40-grain silver solution, and proceed with the development; I never use an old bath for developing, as I have often found, from being charged with iodide of silver, it frequently produces stains. The development ought to be complete in about 20 minutes; wash well, fix with cyanide, then wash thoroughly, afterwards redevelope for a moment or two, dry quickly and varnish.

From the London Art-Journal.

ON COLORING STATUES.

The subject of the introduction of color into sculptured figures has recently become one of considerable discussion; critics, antiquaries, and sculptors themselves, entertaining divided opinions both as to its general use by the artists of antiquity, and its conformability with the principles upon which pure sculpture should be exercised. At the last general meeting of the Archaeological Institute of Great Britain and Ireland, held in Cambridge, Mr. R. Westmacott, R.A., read a paper before the members and visitors, of which the following brief abstract may serve to illustrate his views: his object being, as he says, not to achieve a victory over those who differ from him, but to establish a truth.

His first proposition assumes, that the artists who would introduce painting or coloring into statues, &c., conceive that such additions will *improve* sculpture. When, therefore, they profess and show they are not satisfied to see sculpture practised in its simple speciality—as an Art dealing with *form* only—a sufficient difficulty—it may fairly be taken for granted that they think it deficient in some quality wanting to its perfection, and that they can supply this want by the aid of another sort. But the advocates of polychromy have not boldly acknowledged this deficiency, and seem to be either unwilling or unable to state any Art-reasons for its adoption: generally, they are satisfied with saying it was done by the ancient sculptors, and desire to found the modern practice upon *precedent.* Granted that authorities are not wanting to prove its application among the Greeks and other nations, this no more proves the propriety of the practice in our own day, and in the actual condition of sculpture, than the equally well authenticated fact of the early personages and characters of the Greek drama having smeared their faces with wine-lees, or concealed them under hideous masks, proves the propriety of suggesting to our actors and actresses to do likewise.

Again, admitting its occasional use in ancient times, it may yet be doubted whether coloring originated with any of the great masters of antiquity, whether the practice was general in the best period of sculpture, and whether it was employed by the best artists in works not executed for a particular purpose, and under special conditions.

We may, perhaps, be allowed to bring forward a simple illustration of our own with reference to this last proposition. Suppose, for example, that some distinguished portrait-painter of our school, or of any other, were required by his sitter to paint a portrait in some *outre* style—either of costume or character—and that this one picture chanced to be almost the only specimen of his pencil by which posterity, some three or four hundred years hence, could judge of the artist's work; ought such a picture to be adduced as an example of the style in which the painter was accustomed to portray those who sat to him? But to return to Mr. Westmacott's lecture.

The legitimate province of sculpture, he rightly affirms, is to represent by *form;* what is not thus represented, does not come under the definition of sculpture. If, therefore, sculpture be painted, it is a mixture of *two* arts; as, if a picture be relieved or raised in any part, it is also a mixture of two arts. Suppose, for instance, portions of the "Transfiguration" were raised and sculptured, so as to produce, in fact, the relief or projection of the various figures and groups: would it not be denounced, first, as a most inefficient device; and, next, as an inexcusable departure from an established law of Art?

Mr. Westmacott puts forward four questions with reference to the objects sought to be obtained by painting or coloring sculpture:—"Is it to render the imitation more close to nature?"—"Is it to attract attention?"—"Is it to gratify the senses by adventitious decoration?"—"Is it to give distinctness to the parts of a work when viewed from a distance?" To the first he replies, that it is impossible to effect such an imitation in sculpture as should produce illusion. Even if it were practicable to carry the imitation of that which is the highest object of the artist's study—namely, the human figure—to such perfection as to induce the belief that it was real: that to any one entering a sculpture gallery the figures should so closely resemble nature that, at first sight, they should appear to be living men and women standing on pedestals, would not the achievement cause a very disagreeable impression? Undoubtedly it would. At present the lover and admirer of Art is gratified by the contemplation of a fine and successful work of Art, *as* a work of Art. His imagination supplies all that is wanting; and he does not ask nor expect that his senses should be deceived. Even such a near approximation to reality as is afforded by waxwork exhibitions is anything but pleasing to the generality of people, and especially to persons of taste in Art, though they may be amused by the talent and ingenuity shown in thus producing resemblances. This dissatisfaction is found in the fact that waxwork approaches too near to nature to be agreeable to *Art*, and yet it is not near enough, nor true enough, to nature. The painted monumental sculptures found in our churches are, undeniably, legitimate examples of polychromatic sculpture; and, of their kind, good examples, infinitely superior, in this respect, to any ancient works of the kind that have been discovered. They are, however, chiefly of the sixteenth and seventeenth centuries—epochs when sculpture had not reached a point of much excellency—and the further we go back to *barbarism* in Art, or to its infancy, the more sure do we meet with colored sculpture.

The next two subjects of inquiry, that of "attracting attention," and that of a desire to "gratify the sonses by adventitious decoration," may be very briefly dismissed. They who consider that the whole and sole object of Art is to please the eye, may very consistently contend that all means which can be devised as conducive to that end are legitimate. They would, therefore, add extraneous decoration or ornament to sculpture, in order to attract purchasers, by exhibiting to them either what is merely showy or pretty, or something that is calculated to excite or gratify certain feelings of mere sense. There have been, and, it is to be regretted, there still are, sculptors open to the reproach of doing this for very unworthy purposes; but no artist of the English school has hitherto subjected himself to this charge. A sculptor, jealous of his fame and of the honor of his calling, will be careful not to subject himself even to the suspicion of what might be termed trick, or claptrap, as a means of inviting attention to his merits.

The last of the points into which Mr. Westmacott seeks to inquire, is—whether the object of coloring sculpture is to give distinctness to the several parts of a composition? this he discusses at considerable length: so much so as to prevent our following him through his line of argument. He commences by assuming that the earlier sculptors of Greece most probably borrowed their ideas from the practice of the older nations,—the Egyptian and Assyrian. Once introduced, usage gave it a hold upon the prejudices of the people, who, as sculpture at that early period of their history, was only, or for the most part, adopted for sacred purposes of illustration, no doubt soon closely associated all these models and particulars of representation with the popular religious feelings; and thus, probably, in the more barbarous ages of Greek Art, the painting of the statues of the gods became a prescribed practice. The intuitive genius of this remarkable people soon, however, improved upon the rude means which at first seemed only to be employed to produce a pretty and attractive effect in decoration. When sculpture had attained its highest perfection,—between 480 B C., and about 200 B.C.,—Phidias, Myron, and others, had effected an important revolution in Art, but prescriptive and traditional images it was not easy to abolish altogether; the priesthood, especially, required a strict adherence to established forms: statues in honor of their gods, or to commemorate victories, were ordered to be made out of the spoils taken from their enemies; hence ivory and gold, painting and inlaying, and every conceivable enrichment, were lavishly bestowed to make these votive statues the most costly of dedicated gifts. Again, sculpture was regarded by the Greeks as in general, a portion of an architectural effect; and inasmuch as coloring was extensively employed in the decoration of edifices, the sculptor was, doubtless, called upon to act in concert with the architect, and to subject his work to the same laws of treatment as other parts of the composition. The only two intelligible grounds for the introduction of color among the Greeks seem, therefore, to be,—first, to assist in giving completeness to architectural effect; and secondly, to insure distinctness to the parts of the sculpture itself, when viewed at a distance, and with reference to the tints of the background.

With respect to the ancient authorities for polychromy in Greek sculpture, the presumption that it was ever systematically colored rests on very questionable foundation. It is rather taken for granted from certain vague expressions of comparatively late writers, than proved from contemporary authority, or from any experience we have of the fact as a matter of universal custom. It is true that Pliny and Pausanias, and some other authors, living long after the date of the sculptors whose productions they refer to, mention works so treated, and modern critics have founded various speculations upon these imperfect data. It certainly is remarkable, if the practice ever prevailed to the extent that is pretended, that among the very large number of marble statues of a fine period of Art that remain to us to attest the indisputable superiority of the ancients in sculpture (proper), there is not a single example of the practice alluded to. It will not do to say this is owing to the great age of the works, and the accidents to which they have been exposed, for many of them have been found under circumstances that have insured their integrity a sufficient time to show the original surface. There is no intention to deny the fact that color was sometimes employed, but only to dispute the universality of the practice, and its being usual in the best period of sculpture.

After adducing many of the authorities which are referred to by the advocates of colored sculpture, and combating the opinions founded on such authorities, Mr. Westmacott observed that, if the great sculptors of antiquity bowed on occasion to public opinion in coloring and otherwise ornamenting statues of divinities, and others that were so far of a prescriptive character, or contributed with their Art to the enrichment of architectural effects, there is still reason to believe that in their ordinary works they did not habitually use such extraneous accessories. The very manner of alluding to such works suggests that they were exceptional; and there is authority, even quite as respectable as that for coloring, for the admiration felt by the ancients for statues in pure white marble.

The opinion of Mr. Westmacott—himself an admirable sculptor and an enlightened critic on Art generally—on this subject, may be readily gathered from the foregoing remarks. It was more impressively affirmed, however, by some observations towards the conclusion of his address:—"There is no surer indication of the decadence of good taste in Art, and therefore of Art itself, than when, after a considerable degree of excellence has been attained, a passion arises for elaborate execution and ornament. What in one age is only the effect of ignorance, in another indicates corruption. The history of Art, ancient and modern—for its rapid decline, even in Greece, is very remarkable—supplies us with ample evidence of this, and it is unnecessary to enlarge upon it. Barbarous and uncultivated nations in their earlier attempts at Art adopt all the means that occur to coarse sensibilities to give effect to works of imitation. The employment of colors in sculpture is amongst them."

Mr. Westmacott stands in no need of our opinion to support his own; yet we must add, that whatever tends to alienate the mind from the contemplation of sculpture in its pure and unadorned simplicity, is an offence to the Art, and an evil to be shunned.

From the Liverpool Photographic Journal.

THE COLLODIO-ALBUMEN PROCESS,

BY WILLIAM ACKLAND, ESQ.

This process possesses nearly all the combined advantages of the collodion and albumen processes without the disadvantages. The plates are easily prepared, and when albumenized can be kept an indefinite time; and even when excited, the exposure and development may with safety be delayed two or three weeks.

The time of exposure in the camera may be considerably varied, as an exposure of even double or treble the required time does not affect the result: indeed, all that is necessary is to study the time required to bring out the details of the deepest shades, and no fear of over-exposure need be entertained. The collodio-albumen process, as introduced by Dr. Taupenot, was liable to many serious objections, which even the talent of the inventor failed to overcome; the most prominent of which were, blistering of the film, and a yellowish brown color of the negative, which interfered greatly with the process of printing. These objections are now entirely removed, without affecting the beauty of the process in the slightest degree. These important advantages over the others induce us to give preference to the collodio-albumen process; and we therefore proceed with the description of it, merely premising that although our remarks will be confined to the production of small pictures, there will be found no difficulty in applying this process to those of larger sizes.

Before entering into a description of the manipulations, I propose to give directions for preparing the various solutions. These solutions are—

Cleansing mixture.
Tincture of iodine.
Iodized collodion.
Iodized albumed.
Bath solution.
Gallic acid solution.
Silver developing solution.
Fixing solution.

CLEANSING MIXTURE.

Tripoli	4 drachms.
Cyanide potassium	2 "
Filtered water	4 ounces.

Dissolve the cyanide of potassium in the water, then add the tripoli, and shake well together until perfectly mixed.

N.B.—*This solution is poisonous, and must therefore be used with caution.*

TINCTURE OF IODINE.

Iodine	1 drachm.
Alcohol	1 ounce.

Mix.

IODIZED COLLODION.

The collodion necessary for this purpose must be such as, when poured on a plate of glass, yields a transparent and slightly coherent film, which does not admit of being lifted entire from the glass, and having a roughened surface when viewed microscopically. These properties are not possessed by collodion recently iodized; but good negative collodion, after being iodized as described below, will answer the purpose: it may be used if it has been iodized for months.

In order to iodize collodion for use in this process, add two drachms of negative iodizing solution, ten drops of tincture of iodine, and ten drops of glycerine, to six drachms of negative collodion; shake well together, and then allow the bottle to remain undisturbed for at least one hour, in order that any insoluble particles may settle to the bottom; then pour off the clear portion into a clean and perfectly dry bottle for use.

In operating with this volatile article, never approach with a light near the open bottle, or accident may arise from its inflammable character

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IODIZED ALBUMEN.

After trying various experiments on the best formulæ for this liquid, I am led to conclude that none exceeds the following:—Take three eggs and carefully separate the yolk and germ; pour the white into the measure, which will give about eighteen drachms of albumen. Add to this six drops of glacial acetic acid, and stir the whole together for two minutes with a glass rod, then leave it to rest for *one hour*.

Now slightly plug the neck of a clean glass funnel with a fragment of sponge, and pass through it a few drops of distilled water to moisten it. Next place on the sponge one scruple of iodide of ammonium, and on the top of it pour the now semi-coagulated albumen, and two drachms, by measure, of treacle. This passes readily through, dissolving in its passage the iodide of ammonium in the filter.

The result from this preparation should be *perfectly limpid;* if such is not the case, press the sponge more tightly into the neck of the funnel, and filter till it is so, as *germ* on the plate is still worse than dust.

BATH SOLUTION.

Nitrate of silver, fused	10 drachms.
Kaolin	3 "
Iodide of ammonium	6 grains.
Glacial acetic acid	½ ounce.
Distilled or filtered rain water	16 ounces.

Dissolve the nitrate of silver in four ounces of the water, and add it to the iodide of ammonium; shake well together, then add the remainder of the water, and filter to separate the yellow precipitate which is formed. Then to clear the solution add the kaolin and acetic acid.

GALLIC ACID SOLUTION.

Gallic acid	1 scruple.
Filtered rain or distilled water	4 ounces.

Place the gallic acid in the water, and shake frequently, and keep the bottle in a warm situation for some hours, so that the water may dissolve as much as possible; then remove any that remains by filtering just prior to using the solution.

SILVER DEVELOPING SOLUTION.

Nitrate of silver	1 scruple.
Glacial acetic acid	20 drops.
Distilled or rain water	4 ounces.

Dissolve the nitrate of silver in the water, then add the acetic acid, and filter it for use.

FIXING SOLUTION.

Cyanide of potassium	10 grains.
Water	4 ounces.

Dissolve and keep in a closely-stoppered bottle for use.

N.B.—*This solution is poisonous.*

For the benefit of the non-chemical reader, we will point out the keeping qualities of these solutions:—

The cleansing mixture, tincture of iodine, iodized collodion, silver developing solution, and fixing solution, will keep good any length of time.

The gallic acid and iodized albumen solutions cannot be depended on if they have been made longer than four days.

The bath solution does not change by keeping, but requires the addition of ten grains of nitrate of silver to each ounce, after being used to excite about forty plates; and if it becomes brown, the addition of a little more kaolin will remedy the defect.

FILTRATION OF ALBUMEN.

As iodized albumen filters very slowly through, and soon clogs up the pores of filtering paper, a fragment of sponge, pressed lightly into the neck of a funnel, must be employed instead.

THE OPERATING ROOM.

In order to prepare the collodio-albumen plates, and properly to develope the picture, an operating-room is absolutely necessary. By this it is not meant that a room built expressly is needed, for almost any room can, in a few minutes, be made to serve our required wants, but the only absolute condition that must not be deviated from is, that no light shall enter the room except what passes through three thicknesses of yellow glazed calico. The most convenient room is one facing the north, and with one window only. Prevent any light passing in by the upper half of the window, by closing the shutters, or covering it with any black material impervious to light, and cover the lower half with three thicknesses of yellow calico. Close the door, and carefully observe if any gleam of light enters the room, except what passes through the yellow calico; should any crevice be detected, it must be covered over, as the intrusion of white light through the smallest chink is often sufficient to spoil a picture, although light that passes through three thicknesses of yellow calico does not affect the picture, and affords sufficient illumination for all our operations.

A table placed close to the window, a gutta-percha tray to receive any liquid that may fall in developing, a good supply of cold water, a hand-basin, and a couple of linen cloths, complete all requirements.

It will sometimes happen in travelling that a room may fall to our lot which would give us too much trouble to convert into one fit for the purpose. In that case our manipulation must be deferred until night, and an ordinary candle placed behind a double thickness of yellow calico may be our source of light.

CLEANING THE PLATE.

To clean a new glass plate, pour a teaspoonful of the cleansing mixture over the centre of the plate, and with a pledget of linen well rub it over every part of back and front; then rinse it in a basin of cold water, or hold it under a tap so as to remove every particle of the mixture; next, without waiting for the plate to dry, remove all traces of moisture with a linen cloth, holding the plate by the cloth and not by the hand, so as to prevent the slightest grease being communicated to it. The cloths employed should be of a material sold as "fine diaper," and must be well freed from grease or soap, by careful washing in soda and water, then plentifully rinsed in water and dried; also the one used as a polisher should be kept quite dry. Occasional breathing on the plate during the polishing, and then holding it obliquely, so that the moisture deposited may be seen by reflected light, will serve to point out whether a plate is clean or not. If the moisture of the breath is deposited in patches, more cleaning is required; but if the deposit is evenly spread over the whole surface, it may safely be considered as clean. Glass plates, after being once used, require to soak an hour in a solution of four ounces of common washing soda to one pint of water, so that the hardened albumen coating may be softened and easily rubbed off. They have then to be cleaned as before-mentioned for new plates.

COATING WITH IODIZED COLLODION.

Before proceeding to coat the plate, it is necessary that the iodized collodion should have been allowed to stand for an hour or more, so that any floating particles may fall to the bottom; and in all cases the dust and dried crust of the collodion which may adhere to the neck of the bottle must be carefully removed, otherwise spots or stains will be produced on the plate.

If particles of dust are floating in the air of the operating room, it will be useless to attempt to coat a plate, as they will deposit themselves on it and serve as nucleus for a stain in the after-process. For this reason it is recommended to clean the plates in another room, so as not to disturb the atmosphere of the operating room from this cause.

Having ascertained that the glass plate is perfectly clean, pour on the iodized collodion to coat the plate in the usual manner. As soon as the film has set, plunge the plate into the nitrate bath, where it should remain one minute undisturbed. Now remove the plate two or three times for a moment until the surface is uniformly wetted; then place the plate on a levelling stand and pour over it a gentle stream of common water, so as to remove *as much as possible of the bath solution* from the surface. The plate is now removed from the levelling stand, the back well washed with water, and then placed nearly upright on filtering paper with the face against a wall, for *one minute*, to drain, and it is then ready to receive the albumen coating.

COATING WITH ALBUMEN.

When the glass plate has been allowed to drain one minute, the plate-holder is again attached, and iodized albumen is poured over the surface so as to cover every part; then drain off, *and again pour* on and off *three or four times;* ultimately, drain off as much as possible of the excess of the iodized albumen, and place the plate nearly upright against the wall, with the coated side inwards, to dry *spontaneously, as the albumen coating, if dried by artificial heat, becomes so hard that the plate is not fully acted on by the nitrate bath, and is consequently far less sensitive.* The iodized albumen must be filtered just prior to being used; one ounce will coat ten plates, and what remains should be thrown away, as it will have become too diluted to be effective.

In coating with albumen, the presence of air-bubbles or dust must be guarded against. The former can easily be done by taking care, in pouring the albumen into the measure and on the plate, not to pour so as to generate air-bubbles in the liquid. But should any be detected, hold the plate horizontally, and give it another coating of albumen, then incline the plate so that the bulk of the liquid shall pass over and carry off the bubbles with the running stream. Dust on the plate must be prevented by operating in a room as free from this photographic enemy as possible.

In order to render the coating of albumen as uniform as possible, the plate must stand to dry on two or three layers of filtering-paper, and the upper surface must touch the wall at *one point only*, and not be allowed to rest against its entire upper edge.

When the albumen coating is *throughly dry* (and not till then), the plate is ready to be excited; but if more have been prepared than are likely to be used for taking pictures on the next ten days or fortnight, they may be stowed away in a plate-box, ready to receive the sensitive coating at any time, as these albumenized plates will keep good for months, and are not injured by light.

EXCITING THE PLATE.

Prior to the plates being excited, they must be *thoroughly dry*, and free from any particles of loose dust on the surface, back, or edge. The bath solution, filtered through paper, may be used in either a flat or a vertical bath. The plate is to be immersed for a minute, raising and depressing it two or three times, and then removed and placed on a levelling-stand, and a stream of water allowed to fall on its surface for half a minute, so as thoroughly to remove every particle of the bath solution. When the plate is thoroughly washed it is placed against the wall of the dark room to dry. The plate having been allowed to dry (which takes place in about half an hour), is ready for immediate exposure in the camera, or may be stowed away in a plate-box and kept at least a fortnight before being exposed; and it is a fact worthy of note, that plates that have been kept a fortnight are equally as sensitive as those just excited.

EXPOSURE IN THE CAMERA.

This operation may take place immediately the plate is thoroughly dry, or a fortnight may intervene, provided the plate be kept very carefully from the light and from any sulphurous or other chemical vapors. A mahogany plate-box is to be preferred [or Mr. Crookes's, of tin-plate], as the vapor given off by deal wood injures the sensitive plates.

The time of exposure in the camera of course varies with the lens and light; but it may be mentioned, that with a Horne and Thornthwaite's stereoscopic lens of $4\frac{1}{2}$ in. focus and $\frac{3}{8}$ in. aperture, about half a minute will be required in the full sunshine of summer, three minutes in the sunshine of winter, about two minutes in the summer without sunshine, and ten minutes in winter; *but at all times expose for the deepest shades*, as the high lights are but injured by over-exposure.

DEVELOPING THE IMAGE.

The plate on being taken into the operating room is placed on a levelling-stand, and distilled or filtered rain-water poured over it for half a minute, so as completely to moisten the surface and remove any particles of adherent dust; then drain slightly, and pour over its surface gallic acid solution, so as to cover every part; allow this to remain on one minute, then drain off, and cover the plate with a mixture made by adding one drachm of silver developing solution to three drachms of gallic acid solution (made and filtered as before described.) *Pour on and off repeatedly so as thoroughly to moisten every part of the plate*, and then allow it to remain on the plate until the general outline of the picture appears. This generally occupies about one minute, although sometimes much longer. Now pour off the developing solution, and examine the plate to ascertain if any stains are apparent; should such be visible, they may be easily removed *at this stage* by carefully brushing the surface with a camel's-hair brush. When this is effected, again pour on the developing solution, and allow it to remain until the picture is fully brought out and the high lights are sufficiently intense. On this being accomplished, drain off and thoroughly wash with water. The picture is now ready for the next operation—fixing the image.

Should the developing fluid become muddy, pour it off, well wash the plate, and continue the development with fresh solutions made as before; or should no appearance of the picture take place after three minutes' application of the developing mixture,* use equal parts of silver developing and gallic acid solutions. In general a good picture takes from a quarter to half an hour to develop, and the condition of the sky will serve to indicate whether the proper amount of exposure has been given. An under-exposed picture has a dense sky, but the details in the deep shades are deficient; whereas, in an over-exposed picture the details are well out, but the sky is transparent and generally of a reddish tint; such pictures, moreover, possess no contrasts of light and shade; whereas, when the proper amount of exposure has been given, the sky is perfectly opaque, the middle tints finely developed, and the details apparent in the deepest shades, with perfect contrasts of light and shade. I cannot pass on to the next step without giving a caution against the use of imperfectly-cleaned measures and vessels to contain the developing fluid; these are constant causes of failure, and must be carefully avoided.

FIXING THE IMAGE.

The plate having been thoroughly freed from the developing fluid by washing, is placed on the leveling stand, and the surface covered with fixing solution. In a minute or two the yellow opalescent color of the film will disappear; and when this occurs, well wash with water, and lean the plate against the wall to drain and dry. The surface, when dry, is sufficiently hard to resist any *slight* violence; but as a further protection, warm the plate slightly all over near a good fire, then pour over its surface Horne and Thornthwaite's negative varnish in the same manner as collodion is applied. Allow the superfluous varnish to drain back into the bottle; hold the plate again before the fire until the whole of the spirit is evaporated, and, when cold, the plate is ready to be printed from, so as to produce any number of positive pictures, either on paper or glass, as hereafter described.

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* If the temperature of the operating room is allowed to fall below 60 degrees, the development proceeds more slowly, or even ceases altogether. In such cases heat the developing solutions to about 100 degrees, and renew as often every five minutes until the picture is developed.

A negative picture sometimes requires to be "touched," in order to give an increased opacity to the sky; this may be easily done with indian ink, ground on a plate with water to which a few drops of albumen have been added.

To print from the negative, and to produce positive transparent slides for the stereoscope, prepare the glass plates exactly as for the negative picture, and proceed in all other respects according to the usual methods of positive printing by superposition. Develop and fix the positive in the manner described for negatives.

From the Liverpool Photographic Journal.

DESCRIPTION OF THE WAX-PAPER PHOTOGRAPHIC PROCESS.*

BY W. CROOKES, ESQ.

1. Before attempting to select from the numerous photographic processes the one best adapted to the requirements of meteorology, it was necessary to take into consideration a number of circumstances, comparatively unimportant in ordinary operations. To be of any value, the records must go on unceasingly and continuously:

1st. Therefore, the process adopted must be one combining sharpness of definition, with extreme sensitiveness, in order to mark accurately the minute and oftentimes sudden variations of the instruments.

2nd. To avoid all hurry and confusion, it is of the utmost importance that the prepared paper or other medium, be of a kind capable of retaining its sensitiveness for several days.

3rd. The contraction which paper undergoes during the numerous operations to which it is subject in most processes, (in general rather an advantage than otherwise), is here a serious objection; for this reason, the experiment first tried, of transferring to paper the image received on collodion preserved sensitive by the nitrate of magnesia process, was a failure.

4th. Strong contrast of light and shade, and absence of half tint, unfortunately so common amongst ordinary photographic pictures, is in this case no objection.

5th. It is essential to preserve the original results in an accessible form: and for this reason, the daguerreotype process, admirably as it seems to answer other requisites, is obviously not the one best suited to our purpose.

Lastly, the whole operation should, if possible, be so easily reducible to practice, that with a very small share of manipulatory skill, the loss of even a day's record would be impossible.

2. Bearing these conditions in mind, on looking over the photographic processes with which I was acquainted, that known as the wax-paper process, first described by M. Le Gray, seemed peculiarly applicable. In sharpness it might be made to rival collodion; and although generally stated to be slow in its action, I had no doubt that its sensitiveness could be easily increased to the required degree.

Of all paper processes, I believed it to be the one most free from contraction, either during the time it is undergoing the action of the light, or in any subsequent stage. Its chief superiority, however, consisted in its capability of remaining sensitive for so long a time, that it is of little consequence whether the sensitive sheets be a day or a week old. Then the comparative slowness of the development, which has always been looked upon as one of its weak points, would be in this case a positive advantage, as dispensing with that care and attention which must always be bestowed on a quickly developing picture.

In addition to all these recommendations, it was a process to which I had paid particular attention, and consequently the one in which I might naturally hope to meet with the greatest amount of success.

3. The general outline of the process does not differ materially from that which I published some years back in *Notes and Queries*, vol. vi. p. 443; but as that account was written for practical photographers, the details of the manipulation were brief. It has therefore been thought advisable, that while describing again the whole process, with the addition of such modifications as the end in view requires, I should also give such fuller description of the manipulation, as may render it more serviceable to those who have not hitherto paid attention to photography in its practical details; this must be my excuse, if to some I seem unnecessarily prolix. None but a practical photographer can appreciate upon what apparently trivial and unimportant points success in any branch of the art may depend

It may not be without service, if, before entering into the practical details of the process, I say a few words respecting the most advantageous way of arranging a photographic laboratory, together with the apparatus, chemicals, &c., which are of most frequent use.

Among those requisites, which may be almost called absolute necessaries, are gas, and a plentiful supply of good water, as soft as can be procured.

4. The windows and shutters of the room should be so contrived as to allow of their either being thrown wide open for the purpose of ventilation, or of being closed sufficiently well to exclude every gleam of daylight; and the arrangement should admit of the transition from one to the other being made with as little trouble as possible.

5. A piece of very deep orange colored glass, about two feet square, should be put in the window, and the shutter ought to be constructed so as to allow of the room being perfectly darkened, or illuminated, either by ordinary daylight, or daylight which has been deprived of its photographic rays, by filtering through the orange glass. The absorbing power of this glass will be found to vary very considerably in different specimens, and I know of no rule but experience to find out the quality of any particular sample; the best plan is to select from a good stock of as dark a color as possible. The proper color is opaque to the rays of the solar spectrum above the fixed line E.

6. The best source of heat is unquestionably gas. It will be as well, however, to have a fireplace in the room, as, in some cases, a gas stove will be inapplicable. There should be gas burners in different parts of the room for illumination at night; and also an arrangement for placing a screen of orange glass in front of each.

Several rough deal benches should be put up in different parts of the room, with shelves, drawers, cupboards, &c. The arrangement of these matters must of course depend upon the capabilities of the room.

7. The following apparatus is required. The quantities are those that we have found necessary in this Observatory.

Eight dishes.
Eight mill-board covers.
Three brushes for cleaning dishes.
A vessel for melting wax.
Two gauze burners.
Filtering paper.
A still for water.
One platinum, and three bone spatulas, (flat paper knives).
Six funnels.
One funnel stand.
Pint, half-pint, one ounce, and one drachm measures.
Three glass flasks.
Boxes for holding paper.
Scales and weights.
Sponge, glass rod, stoppered bottles, &c.

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* Employed for the photo-meteorographic registrations at the Radcliffe Observatory, Oxford.

8. The dishes may be made of glass, porcelain, or gutta percha. Glass and porcelain are certainly cleaner than gutta percha; but for general use the latter is far preferable, as with it there is no risk of breakage, and the bottom of the dish can be made perfectly flat, which is a great advantage. These dishes should be made of sufficient length to allow of a margin of about half an inch at each end when the paper is in; and the shape should be made as nearly square as possible, by arranging them to take two or three sheets side by side.

The gutta percha should be of a good thickness, otherwise it will bend and give way, if it be moved when full of liquid. The depth must depend upon the size of the dish, and the purpose for which it is intended. The dishes in use here accommodate three sheets of paper side by side; they are fifteen inches square, and one inch and a half deep. I think, however, for some purposes, where they are not wanted to be moved about much (*i.e.* those for holding the bath of hyposulphite of soda for fixing), the depth might be advantageously increase to two inches and a half. Each dish ought to be reserved for a particular solution, and should have a piece of mill board a little larger than itself for a cover.

9. The brushes for cleaning the dishes are of two sorts: a common scrubbing brush will be found the best for all parts but the corners, and for these another kind must be used, having a handle about a foot long, at the end of which are tufts of stiff bristles, projecting about three-quarters of an inch, and radiating on all sides, forming a ball about two inches and a-half in diameter. Hardly any dirt will be found capable of resisting this brush, if it be pressed into a corner, and twisted round several times. The dishes ought always to be put away clean, as the dirt is much more difficult to remove if allowed to dry on.

From the Jour. of the Phot. Soc.

PHOTOGRAPHIC SOCIETY OF SCOTLAND.

ORDINARY MEETING, MAY 12th, 1857.

George Moir, Esq., Sheriff of Ross-shire, Vice-President, in the Chair.

The minutes of the preceding Meeting were read and approved.

Colvin Smith, Esq., R.S.A., was balloted for and elected an ordinary member of the Society.

Professor **George Wilson** read a paper "On the production of Photographs on Fluorescent Surfaces, and on the different modes of rendering visible the Ultra-Violet Chemical Rays." (See p. 260.)

Mr. **Tunney** explained his "New mode of printing Stereoscopic Transparencies on Glass Plates with Wet Collodion." Mr. Tunney's apparatus consists of an upright bath, somewhat similar in shape to the ordinary gutta-percha vertical dipping baths used in the collodion process, but with the front and back brought nearly in contact at the bottom and the front of glass to admit light. The bath is filled with water, and the collodion plate prepared in the usual way, but slightly washed in water after senitizing, is placed in it behind the negative to be copied, which of course is put next to the glass front. The two plates are pressed tightly together, but a film of water remaining between them, the negative is perfectly preserved from injury from the wet nitrate on the prepared plate. The glass front of the apparatus is then exposed to light in the same way as with the ordinary printing frames. Of course it is necessary to protect the negatives copied in this way with a waterproof varnish. Mr. Tunny recommends gum-dammar dissolved in chloroform, which forms a film perfectly impervious to even long-continued soaking in water. By this process, Mr. Tunny stated that transparencies may be printed with three seconds' exposure to an ordinary gas-light.

MAKING LIGHT OF PHOTOGRAPHY.

PHOTOGRAPHY REGARDED AS A LIGHT SUBJECT.

For the benefit of the lady reader, who is supposed to lie under the stigma of being a *bas bleu* if she owns to any knowledge of a dead language, I may remark that the word Photography is formed from two Greek words, signifying "light-painting;" and that the Photographic art is, therefore, the art of producing pictures by the agency of light.

Thus, Photography is essentially a light subject, and ought to be treated in a light manner. If you doubt this proposition, I would refer you to the discoverer of "the instantaneous process" Mr. F. Maxwell Lyte, who from the very first, as is self-evident, has treated his favorite art in a Lyte manner.

Begone, therefore, ye cavilers, who would carp at me for writing lightly on a subject which you would have treated in ponderous essays and hard-to-be-digested treatises. Hide yourselves beneath the hoods of your cameras, ye senile A-double-S's, who refuse to see a smile on the face of science, and look upon her only as a grim old hag! Betake yourselves to your tents, O ye calotyping malcontents! Mount in penance upon your tripods, O ye heavy fathers of the photogrophic stage! Ye have no knowledge of lightness; ye are as grave as gravity itself.

Why should I not treat Photography lightly? Why should I not have my jest upon it? There is a humorous side to most things; and it was even said of Charles Lamb that he could make a joke at a funeral. Yet, for everything there is a season —even for Lamb. When we ought to be grave, let us be grave; but, where we may have our laugh, let us have it, and that right heartily. We shall be none the worse for it, my friends.

I have the greatest respect for Photography; I hold it in the highest estimation. Should I, therefore, shed tears over it, or write elegies upon it? Should I, even, talk about it in the stilted phrases of Johnsonian discourse, and treat it in the manner of the didactic 'Spectator?' No! to derive pleasure from it shall be my primary, and not my secondary consideration. Though I will not "demean myself" by grinning at all that is to be said by my friend Photography, yet I will permit myself to laugh at what he says and does, where I think that I may do so without giving him offence. He is yet in his youth, and may have hot blood in his veins, but he will be generous and forgiving, and, even if I should hurt his feelings, will believe me when I say that I did so unintentionally.

In the light style in which I shall treat the subject, I do not seek to rival Mr. Lyte. I cannot speak of Photography with the brilliant setting (forth) of a (Dr.) Diamond. I do not profess to hunt up the details of the subject with the ability of a Professor Hunt. I cannot treat it philosophically, as can Sir William Newton. I cannot write of it after the manner of Bacon, as can Mr. Hogg. But I will buckle to the subject—though without the aid or ability of a Buckle; and I will not make the subject so long as Mr. Long has done.

I will remember Sidney Smith's advice, to think of Noah and be brief. I will remember that, in the ark, there was much matter compressed into a small compass, and that people have not now, as then, ten years to devote to the perusal of a pamphlet. But I will bethink myself, that express trains demand compressed ideas; and I will justify my conduct by the thought that the age of railways is the age of raillery, and that a light subject demands a light treatment.

PHOTOGRAPHY IN A LEGENDARY LIGHT.

Although Photography is not to be regarded as "the light of other days," yet its light shines back into the past. Let us, then, take a glimpse at its history.

If we were to trace the science to its source, we might perchance discover that it arose amid the sun-worshippers of the East, and that its mysteries were presided over by the high priests of Apollo. But leaving these early times, let us come to a later period, when the science began to assume its character of modern magic.

Porta was the gate that indirectly led to Photography. It was in the sunny land of Italy that a philosopher, Baptista Porta by name—a Porta who thought no small beer of himself for his discovery—invented the instrument called the camera obscura. He inhabited an apartment to which (owing probably to the oppressive nature of the window-tax) the light was only admitted through a small aperture. The whole of the discovery was owing to the hole, for as it was of a lenticular shape, the ray of light that passed through it painted upon the wall, in cheapest of frescoes, pictures of all that was passing on the outside. The philosopher saw the ray—cried Hurra! and constructed the Camera, that Pandora's box in which Photography lay concealed.

But it was not to jump up like a Jack-in-the-box and be discovered all at once. The alchemists of past days were very different to all chemists of the present day, and chose rather to knock their heads against the philosopher's stone in place of boxing the Camera. They were not well read in Porta's Progress, and they allowed the Italian's invention to rest in the dust of centuries, nevertheless, three hundred years ago they blackened the character of the sun's rays, by discovering that they changed the color of horn silver.

The light once thrown upon the subject, guided others in the same path of discovery; and we are informed, that in 1722, Petit "showed that solutions of saltpetre and sal-ammoniac crystallised more readily in the light than they did in the darkness:" conduct on the part of Peter and Sal which a non-chemical mind has a difficulty to understand. A Swede—not a turnip, but an inhabitant of Sweden—by name Scheele, and, after him, Dr. Priestly, Ritter of Jena, and Count Rumford, made further discoveries in the action of light. Voyel, in a moment of infatuation, found that fat became yellow when made air-tight and exposed to the light, and acquired a taste like rancid tallow; a propensity in the fat, which we may pronounce to be quite a fat-tallow-ty.

But it was reserved for Herschel to further develope the chemical properties of the prismatic colors. This philosopher was in the habit of looking at the sun through telescopes furnished with a combination of glasses; and he discovered that, when he used some of these glasses, he felt a sensation of heat—no very great discovery, by the way, as it is the sensation usually experienced by all who have taken a glass too much. But the discovery, such as it was, led Herschel to make experiments on the heating and illuminating powers of the sun's rays, and, being deeply read in the theory of colors, he found that the deep red rays possessed the greatest amount of heating power. These rays raised Photography one step nearer to its discovery: and Herschel's further researches in the phenomena of light did much to throw light on the after-phenomena of light pictures.

But, perhaps, the first person who produced a picture by the agency of light, was Wedgewood, whose ware and whereabouts are so well known. Although he published in the Journals of the Royal Institution 'An Account of a Method of Copying Paintings upon Glass, and of Making Profiles by the Agency of Light upon Nitrate of Silver;' yet he was unable to throw any light upon the Photographic plate as he was upon his celebrated China plate. His "profiles" appear to have been of that character which we have since been accustomed to see, "in this style one shilling," cut by the clever scissor professors of art—professors who may be esteemed mere infants in art, cutting incissors.

Sir Humphrey Davy came to the assistance of Mr. Wedgewood, but was obliged (in vulgar language) to "take his davy" that he was unable to make anything of the matter, and retired without producing better plates than those of Wedgewood. Sir Humphrey's plates were like the hearts of flirts—the images imprinted on them were but faint, and could not be fixed.

At length, in 1827, M. Niepce, of Chalons—a wealthy amateur chemist, and a gentleman of as much artistic taste as our own Chalon—communicated to the Royal Society of London an account of his experiments in producing on metal plates, with gradations of tints from black to white, the images received by the camera obscura. This was reducing the invention to black and white, and M. Niepce gave to it the name of Heliography—"Sun-painting." The philosophers of England and France were now put on their mettle, and endeavored to put on the metal pictures painted by the sun. An intimate friend of M. Niepce, by name Daguerre, joined in all his experiments, and advanced the discovery many steps. Daguerre's pictures were fixed on paper impregnated with nitrate of silver; those of M. Niepce were upon glass, silver-plated copper and polished tin. The partnership between Messrs. Niepce and Daguerre, Heliographers," was dissolved by the death of the former in 1833; and Daguerre prosecuted his researches alone. In June, 1839, the secret of his discovery was nobly purchased by the French nation, "for the glory of endowing the world of science and art with one of the most surprising discoveries which conferred honor on her native land;" and a pension for life of six thousand francs (240*l.*) was granted to Daguerre. This frank and generous conduct of the French Government was but ill repaid by the recipient of its bounty, who delayed the execution of the official document until a patent had been secured for an agent in England: thus being guilty of a deception which in itself was patent to all.

Simultaneous with the French discovery, and English gentleman, Mr. W. H. Fox Talbot, of Lacock Abbey, Wilts, perfected and made public certain experiments which had been gradually growing into shape for six years past, by which he was enabled to produce sun pictures on iodized paper, by means of nitrate of silver and gallic acid Whether his discovery produced any acid feelings in the Gallic breast of his French rival, we have no means of ascertaining. Mr. Talbot proved that he considered his invention a "beautiful" one, by calling it the "Calotype,"* though his complimentary friends gave to it the complementary name of the "Talbotype." Mr. Talbot patented his process—a process which put an effectual drag on the weal of the science; and it was not until August 1852, that Mr. Talbot was persuaded to act as nobly as his name, and to give up to the public "the right of using any of his patents for any purpose not involving the production of portraits from the life." So that Mr. Talbot gives up his patent to the public, but will not suffer the public to give their countenance to the patent!

Daguerreotype patents were also secured by Messrs. Claudet and Beard, who wielded "the pencil of Nature" in their respective London establishments, and took off the heads of some thousands of her Majesty's lieges in the most expeditious and satisfactory manner; and not only took the heads off, but served them up on clean plates, after the execution. In producing their portraits, Messrs. Claudet and Beard spare no pains to produce correct likenesses and artistic excellence. *May all*† imitate them in this striving after perfection! We should then be soon rid of that commonness of treatment which is so frequently met with, and which gives such a beggarly aspect to many Photographic portraits.

Sir John Herschel appears to have been the first who gave the popular name of "Photography" to the science of light-painting. He made his first communication on this subject to the Royal Society, in March, 1839, three months before Daguerre's process was reported. Mr. Talbot's 'Account of the Art of *Photographic* Drawing' had been communicated to the Society in January, 1839--so that our Talbot was all but first in the race for the Photographic plate.

Simultaneous with Sir John Herschel's communication, the

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* The important action of "Talbot *v.* Laroche," for an infringement of the "Talbotype" patent, was decided on Dec. 20th, 1854, before Lord Chief Justice Jervis, and a special jury, in favor of the defendant but with the expression, that plaintiff was the first inventor. The Lord Chief Justice, in summing up the case, said, that "the wonderful discovery of the latent image was due entirely to Mr. Talbot. It was the foundation of all that followed, but it was not the subject of a patent, as, from its nature, it could not be so."

† It is but due to Mr. Mayall to say, that his "crayon portraits" have all the beauties of first-class pictures, and that his establishment is evidently directed by an artistic mind.

Rev. J. B. Reade addressed to the London Institution an account of a method he had adopted for obtaining light pictures by a process in which infusion of galls was employed. This led to the infusion of no small amount of gall in a correspondence which took place on the subject between Mr. Reade and Mr. Talbot, the latter having, in an affidavit, denied Mr. Reade's title to the invention he claimed. The moral of all this being, that Mr. Talbot had leant upon a reed until it pierced him.

The use of the protosulphate of iron as a developing agent was first published at the meeting of the British Association at York, in 1844, by Professor Robert Hunt, who, at a previous meeting of the Association at Plymouth, in 1841, had, as freely, made public a method of preparing a peculiarly sensitive iodized paper. Since then, numerous other gentleman have, after long labor and costly experiments, made further improvements in the science, and have given the results of their labors to the public, without seeking any other reward than that meed of gratitude which the scientific world and all the lovers of Photography will so liberally bestow. Conspicuous among these Right Honorable Gentlemen, the name of Dr. Diamond, F.S A., will ever be regarded as shedding a new lustre on the science.

The magical Collodion process (a solution of gun-cotton in sulphuric ether spread over a glass plate) was made known in 1851, by Mr. Scott Archer, who thus shot himself into the temple of Fame by the use of gun-cotton. Since then, the wonders of the Stereoscope have proved to us, that—at any rate in the case of a Phographic portrait—"two heads are better than one.

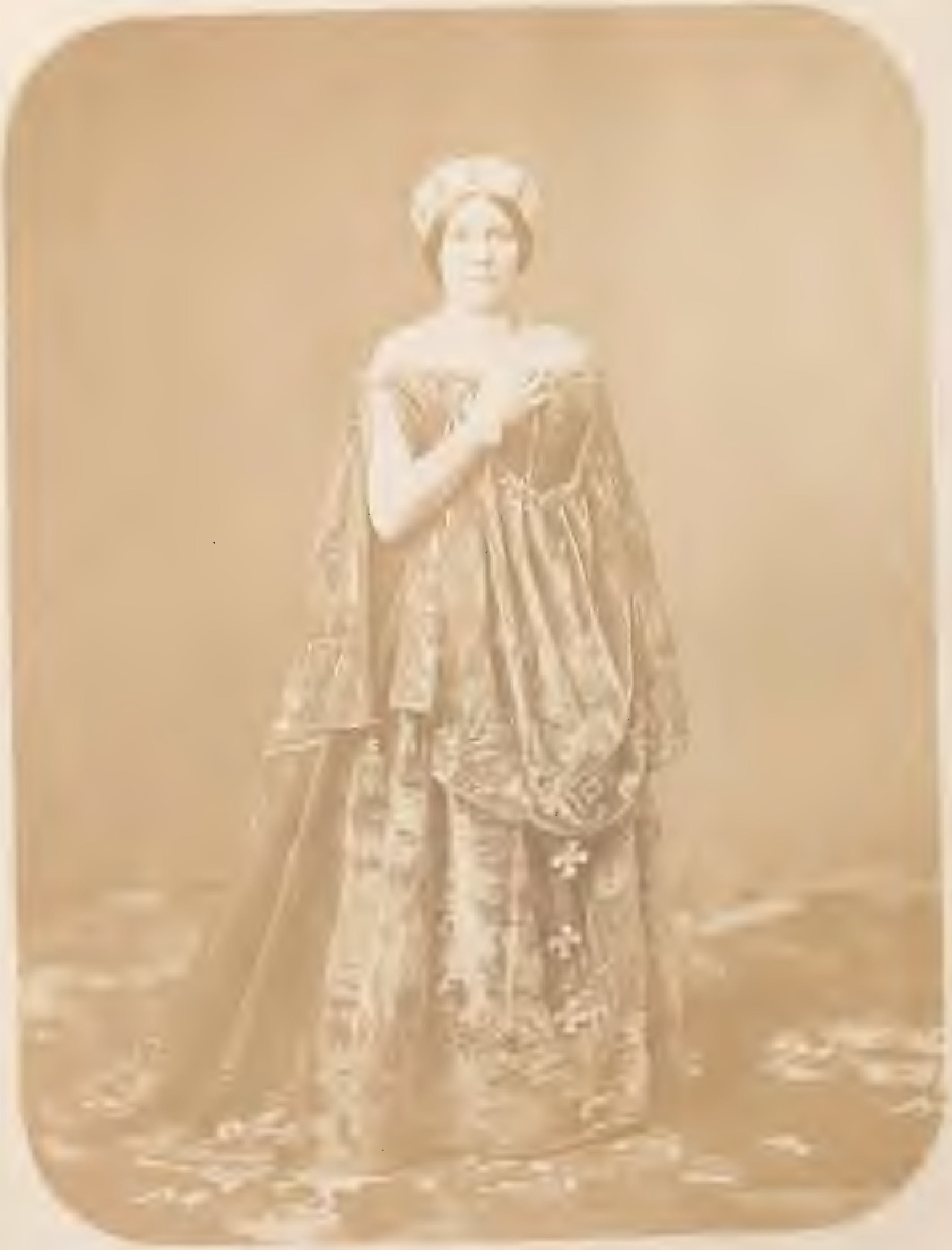
From the Liverpool Photographic Journal.

PHOTOGRAPHIC PAPER.

Some general remarks respecting the varieties of paper which have been, or may be, employed in photography will probably be useful to those who are about to make their first essay in the photographic art. That paper can be had of various sizes, thicknesses, and qualities is well known. That these papers may be divided into "machine made" and "hand made," is again known to many readers; and that there exists a distinction between Foreign (chiefly French and German), and English made papers is well known to photographers. This is not the place to go into full details respecting the manufacture of paper, but the writer having had the opportunity of superintending the entire process of the conversion of "a batch" of pure linen fibre into some ten or twelve reams of photographic paper, may perhaps be excused if he digresses a little in this direction. The fibre was taken in the form of *new* linen cloth, because, in the process of weaving, it loses the greater part of certain husk-like particles (called "sheave,") which cling to the true fibre, and disfigure it by their harshness and yellow color; if the prepared flax could be obtained free from this defect, the expense of spinning and weaving would of course be saved, and I am not at all sure that we shall be content until we can get flax fibre directly converted into photographic paper, paper for water-color drawings, and chemical filters for analyses. The linen cloth was torn into strips, and then cut by a vertically fixed knife into squares of three or four inches each; with inferior materials it is sometimes customary to boil the cut pieces with lime, soda, or other alkali; but I was advised to allow this to be omitted, in consequence of the good and clean condition of the material: I regret that I followed the advice, although it was honestly given—we shall subsequently learn the reason why. In dealing experimentally with a manufacture, the principles of which are not soundly ascertained or understood by the manufacturer, one should insist upon having carried out every practicable suggestion that science can make; for it is clear that uninstructed workmen, however skilful in their own way, are not competent to condemn a suggestion that springs from purely chemical reasoning or experience: the suggestion may cause inconvnience, or be difficult of execution, still we must have it tried, or we must lose the fruit of the rest of our thought and labor. I dwell on this point, because manufacturers are generally averse from changes, for which *they* cannot see a sufficient reason. This is especially true of paper-makers; they make only slight alterations where a thorough re-organization is required, and I am of opinion that, with the present system, we shall never get a paper pure and uniformly good in texture and hardness. To return to our linen pieces; they were at once put into "the engine," a revolving machine, carrying a cylinder armed with parallel iron bars, which, in revolving, almost touch the grooved brass bed, which forms the bottom of the oval tub or tank, in which the rags or pieces, immersed in water, are torn or dragged till they become a mass of short fibres; water is allowed to flow through the engine during this "beating of the pulp," as the operation is termed, hence a great many very small particles escape through the grating placed in the water-way, occasioning a considerable loss of material. At the outset the distance between the iron bars and the brass bed is "set wide," but as the pulp becomes fine, this distance is lessened by an arrangement of screws specially provided: by diminishing this distance and prolonging the beating, the pulp can be got to any negree of fineness.

We have seen that this stuff may be of long or short fibre, according to the time during which the beating operation is carried on, and we now want to know the fineness or length of fibre best adapted for the requirements of photography. It must be at once acknowledged that we cannot with complete satisfaction reply to this question. It is possible that the answer may depend upon the ultimate use of the paper we are experimentally manufacturing. For *positive* printing a *tough* paper with a smooth surface is all we require, so far as the mechanical conditions of the mass are concerned; but for the *negative* which is to be copied from, by light transmitted through its texture, perfect uniformity, internally as well as externally, is to be wished for. Toughness is here also desirable, in order that the paper may bear without injury the repeated wettings, soakings, rinsings, and handling to which it is submitted by the photographer. But, unfortunately, great toughness and perfect uniformity of texture are incompatible qualities, and we must to some extent sacrifice the one to the other. With stuff of *long fibre* we get the toughest kind of paper, the interweaving or *felting* action (if it be one) can obviously be carried to a greater length, besides which the fibres are less disintegrated than in the short fibre stuff. But the tough paper, when examined by transmitted light, presents a mottled appearance, as though (which is the fact) the pulp or stuff had gathered itself up into lumps during the moulding process presently to be described. This mottling is sometimes evident enough to disfigure completely the finished pictures, and it must be at all times objectionable. Apart from this defect the long fibre paper gives a good result, indeed many of the best negatives taken by Mr. Talbot and Mr. Henneman, in the early days of paper photography, were made upon a paper which was distinguished from others by this very defect. It does not follow that a mottled texture is a test to be relied upon, for equally good negatives have been made on a thick paper devoid of this characteristic appearance and made of short fibre stuff. This latter paper was, however, very *tender* when wet, and liable to tear even with very careful handling. From these considerations it will be seen that difficulties of manipulation oppose us as we approach perfection in the physical structure of the essential basis of our paper photography. Our fibre was left in a rather long condition, and gave ultimately a very tough fabric, indeed so tough that it was described by the workman as being "*like bladder*" when wetted. It seems probable that with new linen fibre a shorter condition of the stuff than usual may be permitted. Thus we have, as far as we can, answered the question of long or short fibre. We shall next examine the apparatus and manipulation necessary to form the pulp into a sheet of unsized hand-made paper.

PHOTOGRAPHERS should use none but the purest chemicals.



MADAME PONISI.

Negative by H. D. W. Moulton.—H. H Snelling. Print.

BROADWAY FROM THE HOSPITAL.

Negative by L. E. Walker.—H. H Snelling, Print.

OUR ILLUSTRATIONS.

I.—PORTRAIT OF MADAME PONISI.

Negative by H. D. W. Moulton—H. H. Snelling, Print.

II.—VIEW IN BROADWAY—Looking North from the New York Hospital.

Negative by L. E. Walker—H. H. Snelling, Print.

Both these photographs were printed by the formulas last given. The majority of the prints are quite fair, but the paper upon which they are printed is not good. Much of it is so poor that it would barely hold together during the manipulation—but it was the best we could obtain at the time.

For the Photographic & Fine Art Journal.

HOW IS IT?

Mr. Snelling,—Perhaps you will be somewhat puzzled to guess what is to follow such a heading as the above. Being born Yankees, however, we will come to the point of the subject at once, and make a quotation from the January No. of your Journal, where you speak of the Hallotype and say,—

"There is an exquisite refinement, a subdued softness, a naturally brilliant coloring and life-like expression in every lineament, which almost startles the beholder, and yet its contemplation reduces us to that pleasing state of satisfaction that leaves *little if anything to be desired.*"

Now when we read *that*, we made up our minds to swallow the whole story without greasing, which we accordingly did. We could not digest it, however, and it has kept rolling and tumbling in our stomachs ever since. We expected it would prove fatal, and we think it would have done so, had we not read in the August No. of the Journal, your statement that "Mr. Wenderoth's pictures resemble the Hallotype, only they are *much stronger and more brilliant.*" Ain't that cool, now? Don't that "*much stronger and more brilliant*" take the *glory* out of the Hallotypes in good shape? Oh! jupiter, how are the mighty fallen! How easily are the most wonderful productions of Art eclipsed! We thought from your prodigious description of the Hallotypes, that such unsurpassed and unsurpassable pictures, must, of necessity, be "*much stronger and more beautiful*" than anything else that could be devised. It seems, however, that they lack so much in strength and brillirncy, as to be entirely eclipsed by their much stronger and more brilliant rivals. Now if the Hallotypes are so nearly perfect as to leave "little if anything to be desired," and the Wenderoth's pictures are much "stronger and more brilliant" still, we would like to enquire how much more than perfection Mr. Wenderoth has attained in his pictures? And this will answer our query, "How is it?"

Truly yours,
Gage & Rowell.

P.S.—We forgot to mention that we had the pleasure of examining some Hallotype specimens at Messrs. Whipple & Black's some two months since. Consequently we do not think your exaggerate in the least, when using the expression "*much stronger and more brilliant.*" G. & R.

[Come, now don't be hypercritical. Our remarks in relation to Mr. Wenderoth's pictures do not conflict in the least with those first quoted above, about the Hallotype. The Hallotype is a transparent picture made up of two similar photographs, one rendered transparent the other opaque, colored and placed behind the first. This disposition of the two—when well and properly done—gives all the effect which we claim for it. Mr. Wenderoth's pictures are simply colored photographs executed in an artistic style, and with a skill only within the power of *true artistic* genius—somewhat resembling the transparency of the Hallotype—but from the method of coloring "stronger and more brilliant" in *that coloring*. The two styles are both artistic and perfect in their way. We have committed no error; nor offended truth in either of our notices, and those who can look upon both styles at the same moment, will confirm our opinions in regard to them.—Ed. *P. & F. A. Jour.*]

AMBROTYPES.

COLORS EMPLOYED—AMBROTYPES FOR LOCKETS—TAKING VIEWS—COPYING DAGUERREOTYPES BY THE AMBROTYPE PROCESS—COPYING ENGRAVINGS, STATUARY, MACHINERY, ETC.

[We copy the following from Mr. Burgess's excellent work on the Ambrotype—a book which should be placed by the side of Hardwich's Chemistry, on every Photographer's shelf.]

The propriety of coloring the Ambrotype pictures has been questioned by many, and we may even doubt if they are improved by it; but many persons desire to see themselves in their *natural colors.* The artist is therefore compelled to devise some plan of gratifying the public taste, and color his pictures true to life.

Many attempts have been made to color Ambrotypes, and seal them with the single glass, with the colors to be seen, but this plan has been found impracticable, except in a certain degree. The colors may be seen through the glass if they are very deeply colored.

The black varnish removes nearly all color, even when it is placed over the white varnish, and the opacity of the collodion is such, also that the colors themselves cannot be seen through the glass but very slightly, even before the black varnish is applied. The only feasible plan of applying the colors is on the collodion, blackening the reverse side of the glass. The colors are applied to the collodion after it is thoroughly dried, in the same manner as in the Daguerreotype; but it is necessary to color much more intensely, in order that the application of the white varnish may not remove all the color, as it invariably will a portion of it. After the white varnish is applied and dried, the picture can then be colored still more highly, if necessary, until the desired tint is acquired.

The colors which are best adapted for this purpose are not those commonly used for Daguerreotypes. The following are those which can be applied with the greatest facility, viz.:

Venetian red, or Indian red, various shades.
Chrome green.
Chrome yellow.
Chinese blue.
Purple, a mixture of venetian red and blue.

The Carmine used in the Daguerreotype will not adhere well to the Ambrotype, and the substution of venetian red has been found to work exceeding well and to render the flesh color quite as natural as in the use of the carmine for the Daguerreotype.

The coloring of jewelry, &c., with moistened gold colors can be adapted to the collodion. With some improvement it will not be affectedby the black varnish. The gilding is seen distinctly on either side of the picture; yet by some it is considered as being too conspicuous, and therefore discarded.

The application of most varnishes to the pictures after they are colored has a tendency to darken the whole of the light and shades. It will therefore be necessary to make the impression rather lighter than it is desired to have it when finished.

Many operators put up their portraits after coloring, without applying the white varnish over the collodion, merely blackening the reverse side with black varnish.

It is not to be supposed that they are so durable, because the silver is liable, after a lapse of time, to become affected by the atmosphere, and it must necessarily change. All collodion pictures are of course much better protected by the application of varnish; yet the varnish has objections, from the well-known fact that it will change the colors and thereby darken the picture.

On a refererence to the recipes for varnishes, it will be seen that there is one composed of gum demar and chloroform, which is pronounced by some operators as superior to all others. It certainly appears much whiter, and assumes a hardness on the surface quite desirable.

AMBROTYPES FOR LOCKETS.

Portraits taken for lockets, breastpins, and medallions by the Daguerreotype process are easily inserted, but when taken on glass they are attended with much more difficulty. By using the thinnest glass, and cutting it round with a diamond, it may be ground on a small grindstone, and placed under the glass of the locket without much trouble. The better plan, however, is to finish the picture with the black varnish on the collodion side, and apply to a lapidary. He will insert the miniature in the best manner, and even place it in the locket instead of the usual glass placed there to protect a Daguerreotype. Some have been quite successful in using the common isinglass, or *mica*, such as is placed in the sheet-iron stoves for ornament. By selecting the best qualities of this material, and separating the layers as thin as possible, very good impressions can be produced. They will generally require to be inserted with the collodion side uppermost, in consequence of the numerous little lines which appear in the *mica*, as the collodion will cover up a portion of these imperfections, whereas, if put up with black varnish on the collodion, those line will appear to be injury of the portrait.

These thin layers of *mica* being very light, are apt to float on immersing them in a nitrate bath. It will therefore be necessary to use a medium glass plate, and wet the side of it, and press the *mica* on its surface. Adhesive attraction will retain it in its place until the developing process, when it can be removed and dried.

It is not improbable but there will be some substance discovered that will remove all these objections in the use of Ambrotypes for lockets, &c.

TAKING VIEWS BY THE AMBROTYPE PROCESS.

This is the most simple and easy process known in the art, because operators are always sure of a good light. The utility of it for taking views over that of the ordinary Daguereotype will not be questioned when it is known that all objects are taken without reversing, and that, too, without the use of a reflector. The camera must be used with a small opening diaphram, in order to reduce the light, and render the half tints discernable. The bath must be removed to some place near the object to be taken, because the plate will not be sensitive only as long as moisture remains on its surface. If many minutes should elapse after the impression is taken, it is necessary to plunge the plate into the nitrate bath for a few seconds before applying the developer. It will then cause the picture to appear, even if it had been partially dried on its surface. As little time as possible should intervene after the impression is given before the developer is applied. All views must be sealed up with the black varnish applied to the collodion, otherwise they would appear reversed.

COPYING DAGUERREOTYPES BY THE AMBROTYPE PROCESS.

The durability of the Daguerreotype has long been doubted, yet many persons possess them which are in a good state of preservation, athough taken ten or fifteen years ago.

But this new process of positive photographs on glass possesses advantages over the Daguerreotype that will command the preference on the score of durability. As this fact becomes more generally, known all those persons who possess a Daguerreotype of a departed, friend, will hasten to the Ambrotype artist, and have it reproduced with all the durability which this art possesses. Unfortunately, however, many Daguerreotypes cannot be copied as well as by the Ambrotype process, in consequence of the dark background generally adopted, the Ambrotype requiring a white background in order to copy successfully. This difficulty can be overcome in a great degree, and the Ambrotype copy produced with a light background having all the beautiful effects so much desired in this art.

The original Daguerreotype must be first copied in the usual manner, with the black background apparent, of course, then dried, and the figure only blackened over on the reverse side, when a white piece of paper or pastboard must be placed behind the glass, and a second copy taken with the white background apparent. The second copy will of course be taken, possessing all the requisites of a good Ambrotype.

Many Daguerreotypes can be improved by this process, especially in the appearance of the background. The necessity of a double copy is required to produce the Ambrotype effect, or the first copy may be sealed with only the white paper inserted for a background. Yet the effect is not so pleasing, nor is it so durable.

COPYING ENGRAVINGS, STATUARY, MACHINERY, ETC.

Copying engravings is a very simple process, as the surface is always even, and the objects easily arranged in a favorable light. A small opening diaphragm can be used, which will render the copy very distinct in its details, actually beautifying the engraving itself.

In copying statuary, it will be necessary to have a darker background than the plain white one so often used; yet it need not be entirely black—a dark blue or brown color will answer. One having a lighter centre, and darkened at the sides, would produce a pleasing effect.

In copying models of machinery, this process is of an incalculable utility, as it can be readily seen. The exact counterpart can be produced with a perfect perspective, and no reversal of the object copied.

From the Liverpool Photographic Journal.

PARCHMENT PAPER.

It had been long known and published that sulphuric acid was capable of modifying the *cellulose* which constitutes the basis of the tissues and fibres of all trees and plants. What Mr. Gaine has done is to ascertained by a set of carefully conducted experiments, the exact strength of the acid required, and the various conditions which conduce to success. This being understood there is no ground for charging Mr. Gaine with experimental plagiarism. "He," in the words of the Rev. Mr. Barlow, "succeeded in discovering that when paper is exposed to a mixture of two parts of concentrated sulphuric acid (sp. gr. 1·854 or thereabouts), with one part of water, for no longer time than is taken up in drawing it through the acid, is immediately converted into a strong tough skin-like material. All traces of the sulphuric acid must be instantly removed by careful washing in water. If the strength of the acid much exceeds or falls short of these limits, [the cellulose of] the paper is either charred or else converted into a soluble substance] dextrine. The same conversion into dextrine also ensues if the paper be allowed to remain for many minutes in the sulphuric acid after the change in its texture has been effected." The strength thus imparted to feeble blotting-paper is shewn by the fact that "a ring seven-eights of an ince in width, and weighing no more than 23 grains, sustained 92 lbs., a strip of parchment of the same dimensions supporting about 56 lbs." Parchment paper absorbs water, but does not allow of filtration through its texture; it shrinks without alteration in weight; it is not more combustible than unchanged paper of equal substance; it is not soluble in potash; is not disintegrated by water, like common paper, and, unlike animal parchment, it is not decomposed by heat and moisture. It is possible that a chemical action may be the cause of its physical condition. It has been supposed that the sulphuric acid combines with the cellulose for an instant, to form a substance which the washing water decomposes: Dr. Warren De la Rue, and Dr. Müller are engaged in researches on these obscure points. It is believed that this paper will be useful to the bookbinder, the printer, the law stationer, and perhaps to the artist and photographer.

For the Photographic & Fine Art Journal.

HELIOGRAPHY—EXPRESSION, POSTURE, &c.

Mr. Editor,—It is much to be regretted, that among all the astonishing improvements, which late years have witnessed in the Heliographic Art, so little advance, comparatively, has been made in the matter, which in portraiture is most essential of all, Expression, as well as in several matters beside, which are of no small importance, *e. g.* position and its kindred accompaniments. From inspecting the specimens exhibited in the Galleries and at the doors of the numerous Professors of this Art, one would infer that these items were either completely ignored by common consent, or else were esteemed of trivial consequence. Operants would seem to consider their own part in the production of a picture, as of the most trifling import, and even the little agency they do exercise therein, as *entirely mechanical.* That is, to station the subject *somehow* in front of the Camera, so that a reflection of his face and figure may be thrown upon the plate; and to transfer the latter, if a Daguerreotype, after sufficient exposure, to the mercurial developing box, where the impress is brought out with no intervention of their own; or if a Photograph, to the developing and fixing solutions,—would appear to be all, that most Heliographers believe required of them by their Art. The language of their *action* is, that if *any* Artist be concerned in the matter, it is the unintelligent, undevising Sun, which alone pencils unerringly Nature's handiworks.

No wonder, that in such circumstances, the *true* Artist and the accomplished Connoisseur should look slightingly, if not contemningly, upon the great mass of sun-paintings, as upon the majority of their authors.

Why is it—they ask—that ninety-nine in the hundred of these pictures represent the subject, as staring straight afront? The unavoidable result is, that the face has a swollen, bloated aspect in the *total,* as every feature has in especial—is abnormally broad and in all ways large—and is so far from being rounded up into proper relief, that it looks as *flattened* as if it had been smashed down upon the plate with nothing less forcible than the crashing blow of a triphammer? Strange it should never occur to such operants to represent the face, as pointing *diagonally,* or anywise between the diagonal and the full front direction! And stranger still, that, having done so, and having actually witnessed the superiority of the pictures thus disposed, they should, with unimaginable stupidity, have sunk back into their oldtime uses, and have continued executing worthless abortions, destitute of a shadow of artistic merit.

Why is it, too, that, in the attitude and other adjuncts, they should have yielded no regard to the profession, or vocation, or favorite pursuits of their subjects, so far as practicable? For *on* yielding such regard, depends very much the expression, the spirit, the lifelikeness, the attractiveness of a portrait—the individualising self-hood of the person.

To illustrate what I mean, let me say, that, as a general rule, an orator should be represented in a standing posture, with such concomitants as should make him look, so far as practicable, *as* he looks when addressing a large popular assemblage. And this for two reasons,—first, the orator holds the same position, as when most powerfully and pleasurably excited, and thus he is likely, from association and imagination, to be actuated by the same feelings as on those occasions when he is in his glory. And so with those in other professions or conditions of life. By consequence, both face and form would, most likely, exhibit that life-like *expression,* which is the *sine qua non* of whatever claims the title of portrait.

The same attitude is, in the second place, important on account of its effect on the imagination of the beholder of such portraits. Our appreciation of a picture, as of any and every work of Art, depends greatly on the eye, wherewith we view it, together with our *mental mood* at the time. And for the one under consideration our eye and mind are prepared by seeing the same posture and accompaniments assigned to the transcript, which we had witnessed in the original, or in those of like profession.

And, once more, why is it that most heliographs, with whatever exactitude the mere features and form of their subject may be reproduced, should wear such an unintelligent, spiritless, lifeless, wooden aspect? That this is the fact, is established by the united voices of educated artists and connoisseurs, who have, heretofore, gone so far, as to falsely pronounce Heliography a merely *mechanical* affair and incapable of being made any thing better,—as failing to reproduce more than the *material husk,* and wholly incompetent to deal with and depict the immortal mind. Evidence of this opinion may everywhere be found in the writings of our best modern critics.

We all know the conditions pertaining to the production of a sun-picture—the well nigh electric celerity with which the impression is caught or struck upon the plate and the dumbness and rigorously-unstiring attitude, which the subject must assume at the outset and maintain throughout the process. Stiffness and dulness, if not pain and disgust, are very apt to result from this position and its accompaniments.

Now, can these difficulties be obviated, and the subject be put in such a mood, mental and physical, as that both shall wear an expression, which is easy, genial, spirited, natural and attractive, and exhibits unmistakably the happiest attributes of the *soul* within? This is the question of questions—one, whose solution must determine whether the operant is, or is not, an Artist, and therefore fit or not fit to assume the name and profession of portraitist. For on *him* it depends to do for his subjects whatever is required to awake in them such feelings and thoughts, as shall result in the expression desired, by pervading and beaming out from the material integument.

The *mode* of effecting the task incumbent upon him cannot be taught him by a *third party.* His own genius, judgment, and tact, must instruct him, or he must remain forever untaught. If he possesses these qualities, they will show him how to proceed. By the appropriate fitting up and equipment of his operating rooms—by his rarely adapted conversation with the subject at the time—and by the magnetism of his *simple presence,* he will generally be able so to act upon his subject, as to accomplish the wished-for end.

Now that the defects spoken of as connected with position, &c., might be amended by careful study, observation and attention, is quite probable.

That want of expression can be remedied by *these means solely* I cannot believe. Original genius for the Art is the sole power, in my view, adequate to the effect. This may seem *hard,* since genius is exclusively a gift of God. No harder *here,* however, than in the case of the poet, the sculptor, the painter.

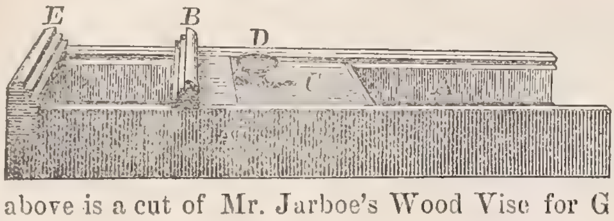
The single conclusion, arising from a view of the whole matter, is that men should avoid vocations for which they are organically unfitted: and that artists by nature, in feeling, in judgment and education, should *alone* wait upon the subject, and have the exclusive control of the camera. M. A. Root.

From the Liverpool Photographic Journal.

DETECTION OF IODINE AND BROMINE.

MM. Henry and Humbert have devised a new process "with the view of determining the presence of iodine in the waters of Vichy." "The water (or the more or less concentrated residue of its evaporation), is treated with acid nitrate of silver. The precipitate formed must contain the chlorine, bromine, and iodine of the water. It is washed and carefully dried. It is then ultimately mixed with a little cyanide of silver, and introduced into a tube, at one end of which it is fixed between two plugs of wadding or asbestos. A current of very dry chlorine is then passed slowly over the mixture, whilst the corresponding part of the tube is slightly heated. The iodine, bromine, and cyanogen are displaced, combine and condense in the colder parts in the form of a white crystalline ring of iodide and bromide of cyanogen; the tube is then closed at both ends, and may serve in case of need as a piece of evidence. The physical and chemical properties of iodide and bromide of cyanogen do not allow them to be confounded with other compounds; the iodide sublimes at 113°, and the bromide at 59° F.; this allows them to be separated mechanically by plunging the tube into water at 86° F.: the iodide and bromide give the principal characteristic reactions of iodine and bromine. Pure substances must be employed to furnish the chlorine required, and the apparatus should be set in action for some time before the commencement of the experiment; for this purpose, cyanide of silver alone is put into the tube; if no trace of iodide or bromide of cyanogen sublimes, the operation may be proceeded with."

JARBOE'S EUREKA WOOD VISE.



The above is a cut of Mr. Jarboe's Wood Vise for Glass or daguerreotype plate cleaning. It is decidedly the best article of the kind in market, and is fast superseding all others. A glance at the cut will show its beautiful simplicity and perfect adaptability to the purpose intended. The price is only One Dollar.

From the Liverpool Photographic Journal.

THE DRY COLLODION PROCESS.

BY CHARLES A. LONG, ESQ.

THE COLLODION.

This being the principal material we have to use, we must exercise great care in the selection of a sample that possesses all the characteristics which fit it for a dry process. We must reject all samples that possess great tenacity and contractile power: the collodion must not be too thick, and it must flow evenly over the plate, and not set in ridges. The best condition for the iodized collodion is that known as *powdery*, that is, being spread on the plate and partially dry, it cannot be removed as a film, but crumbles up on being pressed by the finger in its passage across the plate; in fact such a condition as would arise from using gun cotton prepared which acids at a high temperature.

The following formula will be found to answer most admirably:—

Gun Cotton	60 grains.
Absolute Alcohol	5 ounces.
Sulphuric Æther, sp. gr. ·730	15 ounces.

This cotton is to be shaken up with the mixture of alcohol and æther, and when dissolved, the bottle containing it must be stood aside in order that any undissolved, particles of cotton may subside. The clear liquid may then be decanted into a clean bottle for use.

The Iodizing Solution that I have found to give the best resolts in this process is made in the manner following:—

Absolute Alcohol	8 ounces.
Iodide of Cadmium	64 grains.
Iodide of Ammonium	64 grains.

The iodides are to be dissolved by agitation in the alcohol, and the resulting solution is to be carefully filtered, and preserved in a well stoppered bottle.

The Iodized Collodion consists of—

Iodizing Solution	2 drams.	1 ounce.
Plain Collodion	6 drams.	

The collodion should always be iodized at least twelve hours before it is required; this interval allows any insoluble matters either from the iodizing solution or from the collodion itself to fall to the bottom, and enables the operator to pour off the clear solution into a perfectly clean bottle for use.

Next in importance to the iodized collodion comes

THE PRESERVATIVE SOLUTION.

Some care is required in the preparation of this solution, in order that it may be clear and bright when finished, and not contain particles that would be deposited in its passage over the collodion film when being used. The chief precaution to be observed is *not to allow it to boil too rapidly, and not to conduct the operation over to fierce a fire;* attention to this will prevent many failures, and ensure a solution in every way suited for the process.

Take 200 grains of the best transparent gelatine, cut into small shreds, and throw it into a pipkin in which has been previously placed ten ounces of distilled water, set this on a slow fire, or over a lamp, until the glatine is completely melted; then weigh out 100 grains of pure citric acid, and dissolve it in two ounces of distilled water; add this to the solution of gelatine, stirring it during the addition with a glass rod. The solution in the pipkin is now to be gently boiled until half of it has evaporated; this should be in about fifteen minutes: remove it from the fire, and add sufficient distilled water to make up the bulk of liquid to twelve ounces. When quite cold, the liquid in the pipkin is to be filtered through two thicknesses of pure white blotting paper into a bottle perfectly dry and clean. We now add to every twelve ounces of filtered preservative solution, one ounce of alcohol, of the specific gravity of ·840.

The solution thus prepared is ready for use, and should be of a pale amber color, without any signs of insoluble particles floating in it; should any appear after it has been prepared for some days, a second filtration will remove them and render the liquid again bright and clear.

It will be found better to prepare this solution only in the quantity indicated above, unless the consumption be large; for, although it will keep good for a week or more, my experience points to the fact, that the most successful results follow the use of preservative solution freshly prepared.

THE NITRATE OF SILVER BATH.

The bath for rendering the plates sensitive does not differ from that recommended for taking negatives with wet collodion. The formula for its preparation may not be out of place, however, and may assist those whose knowledge of the matter is not perfect.

Nitrate of Silver (fused)	1¼ ounces.
Distilled Water	10 do.
Iodide of Cadmium	3 grains.

Dissolve the nitrate of silver in the water, and then add the iodide of cadmium; thoroughly agitate the mixture for five or ten minutes, and then add ½ ounce of alcohol, sp. gr. ·840, and ten ounces of distilled water, further agitation, and subsequent filtration through two thicknesses of white bibulous paper, will put us in possession of a negative bath. The nitrate of silver being fused, and, consequently, pure and neutral, and as it is essential to obtain clean pictures that the bath should be slightly acid in its reaction, we find it necessary to add five or six minims or drops of PURE glacial acetic acid to a bath of twenty ounces, in order that the above condition may obtain.

THE DEVELOPING SOLUTION

Is very simple in its nature, being merely a saturated solution of gallic acid in distilled water, to which has been added a small proportion of alcohol of sp. gr. ·840.

The exact formula is as follows:—

Distilled Water	20 ounces.
Alcohol sp. gr. ·840	1 ounce.
Gallic Acid	½ ounce.

The gallic acid will not be entirely dissolved, but that left at the bottom of the bottle will ensure the solution being saturated: it is better not to filter the developing solution until it is required for use, as it is preferable to allow it to stand over an excess of gallic acid, than for it to be withdrawn after a slight agitation with the crystals. It is a great error to suppose that we obtain a saturated solution of gallic acid by merely agitating the crystals with water for a few moments.

The developing solution, prepared as above directed, will keep good and in working order for some weeks; but when it becomes of a dark color it would be safer to reject it and prepare a fresh quantity than to run the risk of a failure from an impure and imperfect developing agent.

NITRATE OF SILVER SOLUTION.

For adding to the gallic acid during development is composed of

Fused Nitrate of Silver............	30 grains.
Distilled Water....................	1 ounce.

THE FIXING SOLUTION

Consists of a solution of hyposulphite of soda in water (filtered), in the following proportion:—

Hyposulphate of Soda in crystals	8 ozs.
Rain or Filtered Water................	20 ozs.

From the Liverpool Photographic Journal.

EXHIBITIONS OF ART TREASURES AT MANCHESTER.

It has always been esteemed a great advantage to the tourist, whether he journey through the beauteous regions of nature, or ramble among the inestimable treasures of art; whether he turn aside to contemplate the ancient reliques of times gone by, or to examine the triumphs of modern engineering skill, that the memory should be assisted by some means within his grasp. A portfolio of engravings, a wallet of fragments selected by himself (oft-times to the great detriment of the object of his visit), are of themselves great and useful adjuncts to the tablets of memory, on which with a pen of a writer more or less ready, every one writes to some extent. These things are not to be valued according to the simple standard of what they will fetch, if offered to competition, but are enhanced in worth by the associations which connect themselves inseparably with the objects or paces visited, and which value, somewhat selfishly, can only obtain in the possessor's own mind. But when a traveller can by simple chemical appliances reproduce, not only to his own, but to the eyes of every one, the actual scene in which his delight was aroused, and in a great measure excite the same pleasurable feelings in others which he experienced himself, it must be clear that the benefit becomes infinitely less selfish, and its extent is only confined by the limits of reproduction. Now photography is a combination of these contrivances; the ingenuity of many minds has arranged means which if rightly made use of, can extend our most treasured reminiscences to those around us, and at the same time may increase our own enjoyment. But the photographer needs warning; it is not sufficient that a subject represented shall be so merely in a matter of fact manner, but its aspect must be favorable. A painting of Vesuvius without the usual concomitants of an eruption as detailed by Pliny, or the picturesque pine tree-like cloud which usually procedes it—a view of Niagara without a rainbow, would be to many people uninteresting: it would not certainly sustain our view of the matter, if we presented subjects like these without the accompaniments, simply because when we visited them they were absent. It is therefore incumbent on our photographic friends that they choose the most favorable conditions of which they can possibly avail themselves, and in this we are only seconding the opinion of a writer in the leader of the last number of this Journal. This idea is one which will hardly fail to occur to a visiter to this exhibition; for without some conceptions not necessarily suggested by the scenes themselves, many of the artists would have quite fallen short of our standard of excellence. The department of photography which we propose at this time to notice, commences with the Falls of Niagara (Nos. 110 and 140); these are interesting as the work of an American artist, whose name is not known to us, and still more so as faithful representations of a scene which has long been regarded as one of nature's most marvellous masterpieces. We next notice two Alpine scenes, by Martens (112), Glacier du Rhone and (138) Monte Rosa; and, viewing pictures of these and similar scenery, we cannot fail to be struck with astonisment at the results obtained. We have not hitherto been favored with any account of Alpine photography; but, comparing great things with small, we are sure, from the impediments which beset the less ambitious artist, that the difficulties of these higher regions must be immense. They are mostly of an altitude which is unattainable in this country. That of the Finsteraahorn, exhibited by Prince Albert, is an immense height above the level of the sea. While speaking of the region of everlasting snow, we may mention, as fine specimens of photography, Matterhorn (184), by Mr. De la Motte; La Mont Cervin (231), Flühlen, with fine cliffs in the background (264), Lucerne (272), with a somewhat spotty sky, by Martens; Glaciers (355); 359) the Mer de Gluce, is a fine picture, though somewhat indistinct in parts; (216), Monte Rosahas, an atmospheric effect of distance quite illusive, exhibited by Murray and Heath. Messrs. Delamore and Bullock's contributions rank amongst the first of their class, both as favorably chosen scenes and excellent specimens of photographic printing, being characterized by a decisive clearness which is not often excelled; and the productions of Mr. Bedford bear also the same marks. Of the former may be mentioned Rydal Fall (179), with capital transparent water, Aber, N. Wales (183); Coast Scene (200); the latter is a capital study for a geologist; (204), a mill, at Ambleside, is an example of photography much more agreeably told than in 258; (207), Stock Ghyll Force, a favorite scene; also (193), on the same stream: (198), a frame containing four lanscapes—Hamstead Heath—evidently taken quickly, so that we almost might expect to find images of rabbits emerging from the brake in the foreground of No. 1. (220) Rydal Church is not so successful, but is interesting, as a spot sacred to the memory of the best of the lake poets. (217), Lyulph's Tower—we think a view from the west would have been preferrable; (232) Rydal Water, another favorite spot. (238) Glastonbury Abbey, (245) Ulleswater (347) Conway Castle, (502) On the Rothay. By the latter artist are a fine view of Pont Aberglashyn (222) and (284) (286), a Gateway at Canterbury, and (320) the Baptistry of the Cathedral of that City. (364) 366), and 368), Welsh Landscapes, which for fine definition may be registered as very beautiful specimens; (510) and (514) are other fine views at Canterbury. There are some good studies of trees, marked T. Bedford, the same artist, we presume. (226) Fir Trees, (325) Plants (182) Pont du Diable, by Mr. Delamotte, is almost stereoscopic, and this gentleman's pictures are all to be well spoken of. There are (188) Lausanne, which we rather suspect of painted clouds, (288) High-street, Oxford, much superior to his stereoscopic views of that city. The visitor should compare this with No. 138, in the Water Color Gallery, a drawing by Mr. A. Pugin. While speaking of Mr. Delamotte, we wish to call attention to his series of Recollections of the Manchester Art Treasures Exhibition, of which honorable mention may be made. If well printed, every local photographer ought to possess a porfolio of these. Mr. White's pictures are all good photographs. We wish we could say as much for his prints, some of which we have noticed to be in a state of deterioration from fading. He shows a first-rate view of a Watermill (190), The Decoy (189), Studies from Life (178) and (244); also (373), a Tale of the Crimea—these three have all the same back-ground of foliage, which is very good. In (228) Wotton House, we think he has attempted too much in endeavoring to show the whole precincts of Mr. Evelyn's house; the print is of an unpleasant color, not usual with this artist. Mr. Fenton's pictures may be identified anywhere; they are almost to be distinguished as well from any other artist's as a Rembrandt would be in a collection of Claudes or Poussins. An extensive sweep of scenery such as (187) Reach of the Dee, a characteristic bit of ancient architecture, as (205) Roslin Chapel, a picturesque mill (247), a Waterfall (500), a River's Bed 503), the Garravalt, (518) a romantic Bridge—all these are excellent examples of photography on a large scale, and some in which a degree of ingenuity in obtaining a position must have been required. Mr. Llewellyn sends some very good pictures, and of them may be very favorably contrasted with others. His views of Penllergare (371, 512, 516) are much superior to No. 566 of the same by Mr. Knight, and to 305, by Mr. Delamotte. Mr.

Llewellyn's 177, On the Tees, is a very good study of rocks scattered about in a rapid stream. We think 365 and 369, On the Wharf and Tenby Bay, must be early attempts of this artist. The comparisons between the different views of Penellgare will afford good illustrations of our opening remarks.

From the Liverpool Photographic Journal.

THE STEREOSCOPE.

Professor Wheatstone's stereoscope is still a stumbling block to those who will insist upon riding their own hobbies before they have fairly tested his. Owing our first knowledge of the instrument and our first instruction in the art of taking pictures for the stereoscope to his kindness, we naturally have a predilection for his views and intensions regarding the instrument; and this even in mere matters of opinion where perfect freedom of thought might properly be claimed. And we act upon this predilection, because we are convinced by experiment and observation that Professor Wheatstone has bestowed infinitely more of time and thoughtful work upon the subject than any of those who challenge his views or who criticise his labors.

At a meeting of the London Photographic Society, we, lately, without assuming to speak with authority, maintained the necessity of certain well known rules given by Professor Wheatstone to those who ask his advice respecting the angular position and extent of separation of the two cameras. The few remarks we then made have been so differently received in different quarters—having met with such alterations and reception and denial, being so misunderstood or misrepresented—that we feel it necessary to recur to the subject in order to notice two or three objections.

Mr. James Ross, in a paper read before the Photographic Society of Scotland, says, "Some insist that landscapes have not the relief of nature unless the lenses are kept apart in some degree proportional to the distance of the view from the point at which it is taken; while others again say that the separation of the lenses is quite immaterial, and that they may be kept close together or removed six feet apart, the effect being still the same. If this opinion be correct, then both the other modes are right as well, and nobody is wrong; but unfortunately the six-feet mode will not do, as anybody may prove by taking a picture of a near object, say a building, and the distortion will be such that the architect would never recognise his own design; or, better still, by taking a portrait of a man smoking, and you will find that the pipe appears to protrude fully as many feet as it should inches while the man's nose appears not very far behind it in the race forward."

Let us examine this *modern* Athenian statement of the case. But first of all let us ask who are the "some" who insist that points of sight six feet apart give the same "effect" as points taken close together. Surely such an opinion as this ought not to have been brought forward as a contrast to be used against those who, from experimental investigation, say that the cameras must be separated "in some degree proportional" to the distance of the object; especially if from any reason whatever the operator is prevented from the approaching the object near enough to view it under the angle that would *naturally* give the greatest appearance of solidity.

But we have *experiment* against experiment, and "unfortunately the six-feet mode will not do." This is disingenuous. Who ever proposed to separate the cameras six feet when "taking a picture of a near object, say a building;" or "better still," "a man smoking"! and of course placed so as to be "nearobject." Surely those who misstate the case in this way, unintentionally though it may be, do not deserve to have their statements considered for a moment. Of course the pipe protrudes as many feet as it should inches, to use the exaggerated phrase supplied to us; but pray what angle does your base line of six feet admit of in the supposed case of a near object? It may be 180°, when we should give you only a range of from 5 to 15°; for remember you have been told that the exact angle is, in reason, left to your own judgment—when dealing with objects which are partly in the foreground and partly at a distance.

A little farther on in Mr. Ross' paper we read that "Mr. Malone seems to have given up the whole argument in favor of 'the wide separation of the cameras,' when in the last number of the *Journal* he says it is not according to nature." What we said in substance was this: that no one could suppose that the views taken from points of sight wide apart represented in all their particulars any scene that could be witnessed, by the unaided eyes, from any one given point of sight. There was not much depth in the remark it is true, for the inferance was an obvious one, and we were simply surprised that we had not already got credit for perceiving it. We had already designated the usual procedure as a compromise, and counselled the use of great judgment in determining the amount of separation; and finally insisted upon the impossibility of having near and far-off objects equally solid looking and equally free from distortion. This is not giving up to the argument relating to the fundamental principle of the instrument, a principle which must in certain cases be strictly carried out in practice, let the non-naturalists say what they will. We proposed a test object, a statue the size of life, placed on a square basis; and we now advise all who are still unsettled upon this question to get such a test, or any fitting substitute, and to take views of it under an angle of say ten degrees, or five if they prefer it, only let them keep to the same angles as they recede from the object, and we are sure they will have no difficulty in deciding for themselves whether the aule here and elsewhere advocated is monstrous or not.

REDUCTION OF SILVER BY ESSENTIAL OILS.

"The operation of coating glass with mercury is attended with serious detriment to the health of the workmen, from the vapors of the mercury; it also requires very considerable time for completion, and is subject to frequent miscarriage. The plates often break under the pressure of the weights with which it is necessary to load them; drops of mercury sometimes flow down and carry the amalgam with them, when the silvered mirrors stand on end, giving rise to the curved streaks (worms), and the amalgam is liable to spoil by crystallization or carriage. The process for silvering mirrors, proposed by Drayton, and tested by Faraday and Warrington, is free from all these defects. The silvering fluid is obtained by mixing ammonia with nitrate of silver, filtering the mixture and adding to it an alcoholic solution of oil of cassia.* This fluid has the property of depositing bright metallic silver, on the addition of the *reducing-liquid*, which consists of a solution of one part oil of cloves (*ol. caryophyllorum*) in three parts alcohol.† In order to silver a mirror by this process, a perfectly clean plate of glass is surrounded by a rim of putty, and a layer of silvering fluid one or two lines in depth, is poured upon it. As soon as the solution of oil of cloves is added, a film of brilliant metallic silver attaches itself firmly to the surface of the glass, and this takes place with a rapidity proportioned to the quantity of the solution that is used. The coating succeeds best when the reduction proceeds slowly, and is produced by a very few drops of the solution; from six to twelve drops are sufficient to cause the precipitation of four and a half ounces of the solution of silver, and the film of metal is so thin that a square foot of it only weighs from twelve to eighteen grains, in fact, the value of the silver covering a a surface of ten by five feet, varying from $\frac{1}{2500}$ to $\frac{1}{1500}$ of a line in thickness, does not exceed from seven to ten shillings. It is obvious that the principal of the process consists in deoxidizing the oxide of silver by means of the volatile oil, and this is effected *without any evolution of gas* which might destroy the continuity of the metallic surface. The nitrate acid remains in combination with the ammonia.

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* One ounce of nitrate of silver, three ounces of alcohol of 87 per cent., and twenty to thirty drops of oil of cassia, form the mixture.

† Formic or aldehydic acid might perhaps be conveniently substituted for this mixture.

Notwithstanding the apparent advantages of the process, it has not been carried out extensively by the manufacturers of mirrors into whose hands the process has been transferred, and this is probably due to the difficulty of obtaining a perfectly clear unspotted surface of any considerable extent.—*Knapp's Technology.*

For the Photographic and Fine Art Journal.

HUMBUGS vs. ANTI-HUMBUGS.

Mr. Snelling,—There seems to be a great strife going on among artists, to see who will deceive his neighbor most, and make the most money out of some pretended improvement. Almost every day we receive some disgusting circular, in which the most extravagant language is used to describe the benefit that may be derived from adopting 'my improvement.' In nine cases out of ten, their own extravagant language condemns themselves; and their circulars are quietly dropt into the fire and forgotten.

We always look with suspicion on long-winded circulars and advertisements and never notice them unless coming from persons of known reliability. We have even crossed two or three stock dealers off our list for promising too much and performing too little.

Not long since we received a circular and description of a new Patent Plate Holder, with the modest request that we should send the 'talented inventor' the sum of seventy dollars, for the privilege of making and using them. Now if the same holders were to be made and given to us, seventy dollars a year would not hire us to use them, as the common holder is every way a better article for the purpose. Yet there are plenty of artists who have bought the right for using the Patent Holders, and got shaved accordingly.

We are glad to see that you speak favorably of H. D. W. Moulton's Photographic Process. We think we have made as good negatives by other processes as we can ever hope to make by this; but, as far as we are able to judge, Moulton's Process will bear off the palm in regard to to uniformity and certainty of results, as it requires no particular *forcing* to produce an intense negative, with the most delicate delineations. We think it will prove to be a good process for views, and we intend to photograph the White Mountains and other scenery in a few weeks, and hope to send you some of the results.

M. P. Simons' method of cleaning glass with nitrate of mercury, as given in the Journal, is capital. Mr. Simons deserves the thanks of the fraternity for his *manliness* in not getting it patented, as it is more worthy of a patent than ninety-nine out of a hundred that receive one.

Your Pittsburgh correspondents' Patent Leather Process is also very good, and is worthy of a trial by all who have occasion to use that style of picture. We have made very pleasing effects by it.

Truly yours,
Gage & Rowell.

ABSORPTION OF LIGHT.

No body is perfectly transparent; some light is evidently lost in passing even through space, and still more in traversing our atmosphere.

Amongst the most curious instances of absorption is that which is uniformly discovered in the solar spectrum, if we examine it with a telescope. We then find that the colored rays are crossed by a great number of dark bands or lines, giving no light of any color; these are generally called Fraunhofer's dark lines, as it was to the indefatigable exertions of that experimentalist, and by the aid of his beautiful instruments, that most of them were discovered, and measured, and enumerated. It is quite clear that those lines represent rays which have been absorbed in their passage from the sun to the earth; although some of them have, no doubt, undergone absorption within the limits of the earth's atmosphere. We have every reason to believe, with Sir John Herschel, that the principal absorption takes place in the atmosphere of the sun; and it has been shown by Dr. Miller that the number of lines is continually varying with the alteration of atmospheric conditions.

It has been calculated by Bouguer that if our atmosphere in its purest state could be extended rather more than 700 miles from the earth's surface, instead of nearly 40, as it is at present, the sun's rays could not penetrate it, and this globe would roll on in darkness and silence, without a vestige of vegetable form or animal life. The same calculation supposes that sea water of loses all its transparency at the depth of 730 feet, but a dim twilight must prevail much deeper in the ocean. The researches of Professor Edward Forbes have proved that at the depth of 230 fathoms in the Ægean sea, the few shelled animals that exist are colorless; no plants are found within that zone; and that distinguished naturalist fixes the zero of animal life at probably about 300 fathoms.—*The Poetry of Science, by Robert Hunt, F.R.S.*

Personal & Art Intelligence.

— In our remarks in our last, respecting our photographic illustrations, it was not our intention to condemn the negatives which have been furnished us for publication. With the exception of one or two, which were copies, they have been of the finest description, and many of the positives printed from them we have never seen surpassed. The faults we complained of—we wish to be understood—are principally referable to the varnish, and we regret that the gentleman who furnished them did not inform us what varnish had been used. We could then have rendered valuable service to the photographic artist by stating the qualities of each as to endurance. With two or three exceptions, the articles used became more or less yellow; or so thin that they soon wore off and almost every print taken from them defaced them still more. These faults of course are more observable where a large number of impressions are taken from a plate, as in the case of our Journal; but we conceive it to be of considerable importance, particularly, to have a varnish that will not become discolored. In our next, we will note the appearance of each negative plate we have received, and we should feel obliged to the artists who contributed them, if they will *then* inform us as to the kind of varnish used. When we made up our mind to illustrate the Journal with Photographs, we had several points in view, which we felt were all of importance to the photographic art. The principal object was to make known to the public the progress of the art towards perfection, and to place the merits of our photographs before them—to give an opportunity to our young photographers to judge of the various styles and formulas adopted by our most distinguished artists—and to give greater attraction to the Journal itself. Our intentions were freely given at the time we proposed this change in the Journal, and photographers were invited to contribute. With a few exceptions they have shrunk from this test of their ability, and many have put us to a great deal of inconvenience, perplexity, and loss of time and usefulness by making false promises, and holding out false inducements. The censure that has been cast upon us for not having furnished the photographs for 1855 and '56 as promised is due, not to us, but to those who gave assurance of their assistance in this department. We have had almost as much difficulty this year in obtaining negatives as in former years, and in several instances have been obliged, at the last moment, to use such as we should not, had certain photographers kept faith with us. Opinions have also been expressed—which in the main—considering the objects to be carried out, and the reasons adduced—are correct—which convinces us that it will be more pleasing to the majority of the photographic artists to have the illustrations of objects of more general interest taken by those not directly engaged in the business of photographic picture-making; and we think it best to gratify this desire after the close of the present volume.

Cleveland, July 27th, 1857.

Mr. H. H. Snelling—*Dear Sir:*—Enclosed you will find a view of the Columbia Engine No. 11 of Buffalo, N. Y., taken with the dry plate. The company numbers sixty members, each of whom wants a copy. This is a beginning of a great harvest that will be reaped from the dry process. We have always disliked very much to go out to take views with the wet plate, but with the dry it is the opposite. The process is sure if the plates are prepared with care. And with your permission we will state (through your valuable Journal) for the information of all interested, that we purpose to prepare the plates with great care and sell them to all who may wish, with directions how to develop them after exposure in the camera. We at first purposed to sell rights to use the process and furnish preserving liquid, but think it advisable to sell only the plates at present; many feel rather sore over-purchases they have already made in the Photographic Art. We will sell the prepared plates 4-4 size for $12 per dozen, and larger and smaller sizes in proportion. We pursue this course to demonstrate to all that the Dry Process is all it is represented to be.

Yours respectfully,
Wm. C. North & Co.

Since the receipt of this letter we have had the pleasure of seeing Mr. North, and more specimens of the process. These specimens fully confirm the notice we made of the process in our July issue. So far as we are able to judge, we may pronounce it the *best dry* process yet offered. Mr. North has relinquished the idea of making and selling the plates, as proposed in his letter, but will probably sell the preservative liquid with instructions for its use. Our remarks in the July number were founded on the supposition that, like others of our photographic inventors, Professor Smith had applied for a patent and intended to sell rights. We therefore did him an injustice which we hasten to correct. Professor Smith has devoted much time, otherwise valuable to him, in prosecuting his search after this decidedly great improvement, and the manner in which he desires to place it in the hands of all photographers, is as liberal as any one can reasonably expect, and conflicts with neither of the principles we have *always* advocated through the columns of our Journal in regard to photographic discoveries We have also been much shaken in our views in regard to the utility and saneness of free gifts to photographers, since we have witnessed the ingratitude of our artists to the noble F. S. Archer. With such an example before us, we cannot again condemn any man who refuses to *give* his hard bought experience to those who can feel so little sympathy and gratitude towards their fellow men. Mr. North informs us that he finds Professor Smith's process the best adapted for taking large groups and portraits of children, of any he has tried, and that the ease with which he has been enabled to take children, has increased his business to such a degree, that that increase fully repaid him the amount invested in the process in a very few days.

— J. C. Elrod.—The facts you state we acknowledge to be true, having made inquiries of others knowing them. We had a hint of them after the illustrations were printed and the article in type—but taking counsel of the gentleman alluded to, we concluded to give them place; for the reason that these gentlemen stated, that those transactions were forgiven and forgotten, as there was evident desire upon *his* part to recover from the odium *those* acts engendered, and that a helping hand in the good resolve he had made, in whatever shape it might come, would greatly tend to confirm the resolve. This was the advice of those we consulted. Others whom we have since seen speak highly of his present position and character. Under these circumstances do we not well in declining to publish your communication?

To the Editor of the Photographic and Fine Art Journal:

Dear Sir—An amateur photographer, passionately fond of pictorial art and highly delighted with the facilities afforded by Heliographic science in securing faithful transcripts of nature, I am nevertheless non-plussed in its pursuit by the want of efficient and portable instruments. The principal difficulty which I find here (a Canadian country town), is the lack of a lens, which will focus a good field (say 10 or 12 inches) clearly, and without being so clumsy and ponderous, as to put its use (anywhere but in a gallery) out of the question. The only article which I have met with, capable of *doing it at all*, is an extra-whole C. C. Harrison's portrait tube, diaphragmed down to an half-inch aperture; but it is itself, of more weight than I wish the whole apparatus to weigh. If such a tube will only give a good "view" when reduced in aperture, why cannot a good landscape lens be made, not more than one inch in diameter, and of proportionable length and weight? I am no optician and of course am unable to answer the question. Three several times have I invested in instruments and as often have thrown them up in disgust, never having been able to find a lens giving an extensive and flat field and possessing the necessary portability; will you be kind enough to inform and advise me as to how I may obtain this desideratum. On the cover of your periodical, I observed an advisement of "view lens," and addressed the parties stating my requirements. I received a courteous reply inclosing a four-inch (or half-size) picture as a specimen operation performed by the 12-inch field lens. This of course was unsatisfactory to me, who had no opportunities of making further trial, and who moreover, had suffered before, in purchasing a useless affair on the prestige of its "English manufacture." Some observations in the Journal, either from yourself or some of your numerous talented contributors, will, I am sure, be of general use, for there are numerous others in the same predicament as your

Canadian Subscriber.

Such an instrument can be made and such are the landscape (view) lenses of Mr. C. C. Harrison. As landscape instruments they are unsurpassed as his portrait tubes. We have never seen any with the same extent of field so perfectly achromatic, and so free from aberration. The largest weigh only 2½ pounds. A box of any description can be made for you by Mr. Anthony to suit the tube.

— L. White.—We mailed the illustrations to you on the 1st of August.

— H. H. Richardson writes—"I see by a communication in the August number of the Journal, that the subject of pedling cases is engaging the attention of our fraternity. Now I, for one, look upon these peddlers as benefactor, inasmuch as they may teach us to look to our legitimate profession for our subsistance, rather than to the profits on the sale of cases; and in order to aid in the accomplishing this "consummation so devoutly to be wished," I would suggest that we 'cease purchasing these styles which the pedlars have so kindly undertaken the disposal of, and perhaps their success may induce them to relieve us of the whole traffic in leather and pranella.' What can have become of all those suits for infringements upon the Cutting patent? Have they proved to be beyond the jurisdiction of the U. S. Courts as well as beyond that of the courts of the State of New York?"

So far as we are enabled to learn they are all in *statu quo*—waiting, like Macawber, for "something to turn up"—side down.

— W. N. Gardner.—This talented young artist has presented us with an exquisitely beautiful photograph unsurpassed by the works of our best artists. Photographs such as this have no superior. Mr. Gardner is now in the establishment of Mr. C. D. Fredericks

— E. D. Ritton.—Don't buy. We do not think you can maintain the exclusive right.

— J. S. Woodbridge.—We are desired to call attention to this gentleman's advertisement on our cover.

— How to do Business is the title of a very excellent little manual, published by Messrs. Fowler & Wells, No. 308 Broadway, New York.

— Wood & Brother.—These gentlemen has purchased the photographic gallery formerly occupied by Mr. C. C. Schoonmaker. We have not had the pleasure of seeing any of their work; but a young friend of ours who visited their rooms a short time since, speaks highly of their efforts in photography.

MAKING LIGHT OF PHOTOGRAPHY.

PHOTOGRAPHY IN A HIGH-ART LIGHT.

We were a long while before we could discover what was really meant by the expression "High Art." It had an ambiguity which bothered us, and brought us to the verge of distraction. We called in the aid of Dr. Johnson, and asked his advice; but the great Lexicographer's prescription only made us worse than ever, for it was stuffed so full of meaning that it made a very disagreeable mixture, and we could not tell what to make of it. We were as much in the dark as ever, as to what was really meant by the term "High Art." At one time we thought that it meant works of art purchased at a high or exorbitant price,—pictures bought, by those who had a fancy for them, at a purely fancy price. And we considered that when (in May 1852) the most celebrated of Marshal Soult's fifteen Murillo's, became the property of the French government for the trifling sum of £24,612, it might be taken as a very fair specimen of High Art.

At another time we imagined it to be the kind of art that decorates the ceilings of rooms and halls, and the interiors of domes and cupolas; and that, in such cases, it would consist of "fore-shortened Allegory," and in such anachronisms as "Minerva presenting Sir Isaac Newton to George III, while Lord Bacon registers the reward that is about to be bestowed by the King on the discoverer of the Theory of Gravitation."* And we paid our penny, and peered into the smoky dome of St. Paul's, and in its appalling frescoes we thought we dimly traced High—very High Art.

But a change came o'er the spirit of our dream. We were bold enough to express our admiration of some works of living artists before a gentleman who professed to be a great connoisseur, (or as we heard a Mrs. Malaprop once expressed it) "a great common sewer" in Art. "Hur! ha!" said our friend, as he balanced himself on his hind legs, and made a *lorgnette* of his two fists: "they have some little merit. But the secret of color is lost, my dear sir; it went out with the glorious Venetians. Our moderns don't know how to paint, sir; they are crude, sir; they are tame; they don't give you any masses, they don't study chiar oscuro; they want tone, sir,—tone. In short, my dear sir, the pictures of the moderns are not High Art." Having thus learnt, on the authority of the common-sewer friend what was *not* High Art, we were straightway led to believe, that what we sought for was to be found in the smudgy obscurities of diseased—we beg pardon! *deceased* masters. These were the kind of pictures we always saw at great Show-houses in the country: the black-silk Housekeepers who took us round the room, appeared to assign them names with an indiscriminate boldness, fearful and wonderful to contemplate. They may possibly have been of opinion, that one name was quite as suitable as another;—and, doubtless, it was; but we observed that the names they had the greatest relish for were Raffle, Annibal Scratchy, Slavarty Rosy, Georgy Oay, and Sassy Frahty, whom we thenceforth considered as the peculiar masters, and High-priests of High Art.

Having once got these diseased (or deceased) masters into our heads, we were then, by a natural train of thought, led to imagine that High Art was but another term for diseased Art—Art that was not in its freshest and soundest condition;—just as we talk of game being "high" when it is brought to table in a condition which makes one afraid that it will walk off the table before we have time to eat it. So that we concluded, that any Art that was not very recent, must be High Art.

Then came a change in our opinions, and we had to knuckle-down to the Elgin marbles: and we looked at the bas-reliefs of gentlemen riding their horse-like, unbridled and unsaddled, ponies, and we were told, that true art was always thus unbridled, and that those bas-reliefs have come to the relief of Art, and that they were, in fact, High Art.

Then came poor Haydon, with his acres of canvas, which always mystified us as much as the apple-dumpling did King George the Third,—we wondered, how on earth the picture was got into the room, and we thought, that any gentleman who gave the painter a friendly commission, would be in as awkward a predicament as the Vicar of Wakefield was with his family pictures,—or, as an amateur coach-building friend of ours, when (with two years' labor), he built for himself a carriage in his own dining-room, and then had to pull it to pieces to get it out of doors. We were told, however, that Haydon's pictures were High Art; so that we considered the term applied to huge pictures, in which sprawled nude athletes, whose muscular and anatomical development was only to be equalled by gentlemen of the Farnese Hercules build. Where did Haydon get his models from? We don't grow such muscles now-a-days. But, perhaps, we are a degenerate race.

Then came the Duke of York's column (the parent of many calumniating jokes), and the Nelson pillar; and, in our innocent simplicity, we imagined that the term High Art could be strictly applied only to such figures as had lightning conductors growing from the tops of their heads.

But, soon, came the Westminster Hall cartoons; and we were told that *they* were High Art. And we thought, that if the term did not apply to the elevation at which the cartoons were hung, it must mean such subjects as "The finding of the body of Harold," (they have murdered him often enough—why don't they find him, and not waste so much precious time in the search?) "Canute and his Courtiers," (whom the sea of oil poured on them ought to have swept away long ago); "Non Angli sed Angli;" (we wonder they are not ashamed of perpetuating such a very old Joe;) "Queen Philippa and the Burgomasters of Calais;" (a got up "stage effect" in which we never believed;) "Queen Eleanor sucking the poison from her husband's wound;" (she has sucked enough, by this time, to poison all the Queens in history); "Prince Henry striking Judge Gascoigne on the Bench;" (perhaps, the only striking subject of the series—though we might feel inclined to inquire what part of the Judge's person is meant by the word "Bench;") "Charles the Second in the Oak;" (or rather, "Charles the Second—a hoax;" for, if he was hid in a tree, we could not see him,) and all the old stock historical subjects, whose degradation at the hands of Artists is now a matter of history. When we think of these things, we are constrained to express our surprise that people, who have had such good palettes, can yet be so utterly wanting in taste.

Altogether, we had become so confused on the subject of High Art, that we began to think it a lunacy to strive after the discovery of such a myth, as well, we thought, might we strive to discover the haunt of Echo, or the North-west passage. But we find that, after all, we have been mistaken; some one has found the North-west passage for us, and we have found out High Art for ourselves, it has only developed itself in these later, and degenerate days. We made the discovery in the following manner; and we feel that the account which we are about to give, will, though brief, in time take its place with those other narratives of Expeditionary discoveries, which the energetic genius of the present age has called into existence.

Walking down Fleet street one day, in an unusually serene state of mind—(we had been to receive our dividends),—we were attracted by a large showy gilt frame hung out against the portals of a door, and in this frame were the miniature resemblances of several worthy people of both sexes. In the midst of these unprepossessing individuals was a legend, to the effect, that Mr. Jones would, in his Daguerreotype Rooms, take us off in similar style, for the small sum of seven-six,—gilt frame us, for ten-six,—do us, second size, three-quarter length, for fifteen,—and finish us off in a morocco case—"elegant"—

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* As Truth is stranger than Fiction, it may, perhaps, be necessary to state, that this subject is really to be seen in the Library of Trinity College, Cambridge. It was designed by Cipriani (who received 400*l.* for his trouble!) and fills the painted window at the lower end of the room.

for the trifling charge of one guinea. The announcement met with our deepest sympathy, and we perused the legend with breathless attention. The plates on which the likenesses were executed, were polished like so many little mirrors. We saw in them the reflection of our (shall we say, handsome) features; they wore a most amiable, and *pleasing* expression, and it occurred to us that it would be the very time to give the sun the benefit of our countenance.

A placard informed us, that the Daguerreotype and Photographic Rooms were upstairs ☞ So we passed down a dark passage, and tumbled on to a still darker staircase, to the great damage of our shins, and the needless outlay of inelegant expressions. With a little difficulty, we got up a flight of steep stairs, kicking against each stair as we went, to keep ourselves in the right track; and, at length we found ourselves on a small landing, of a size calculated to hold one uncomfortably. We looked about us, and, by the light that dimly straggled through a half-glass door, we saw before our nose,—indeed, against it,—another ☞ as though pointing out to us an upward path. We silently took it; the way was steep and sterile—for the carpeting had ceased at the first *plateau*,—and we began to feel fatigued. We arrived at another landing, as shrunken in its dimensions as the previous one; and there, on the wall, gleamed the mystic ☞ Gloomy thoughts took possession of our mind; but the faint sound of "Cheer, boys, cheer!" played on an organ in the street below, encouraged us to proceed. We staggered up another steep and sterile flight, and, by a toilsome route, gained another *plateau*. Still, the mystic ☞ was there, and still it urged us upwards—upwards!

We went on. The air from the organ in the street below, became fainter, and fainter; the air from the attics and the rooms above grew denser and denser. We staggered, and would have fallen; but we recovered ourselves by a strong effort, and pushed on. We reached another small landing, but the ☞ was there before us. We sat down on the bare and dirty boards, and were glad to do it. We thought of our happy home, and our innocent childhood; we recalled the days when we sported in artless mirth, and were boxed for dirtying our clean pinafores. We reflected, that the scene was now changed; and we were almost unmanned: but we repeated the inspiriting words of Lonfellow's "Excelsior," and then, somewhat cheered, continued the ascent. Again the light beamed upon us from a staircase window, but it served only to reveal the hazardous nature of our expedition. Shall we forego the enterprise, and descend? No! the courage of an English heart forbids it, so long as there is a chance of success. We go on. Another landing and another ☞ It is a demon hand that is going before us, and luring us on to destruction?? Horrible fancies fill our brain. A door is beside us, the handle towards our hand: Come, let us clutch it! and it opens. What do we see? a bald-headed woman in a semi-dressed state, who rushes behind some bed-curtains, and screams "It's upstairs! It's upstairs!" What is upstairs? let us go and see. We apologise to the bald-headed female, and go upstairs. All is dark and silent: then we hear a bang against the door we have just left, and the sound of a key turning in a lock:—the bald-headed female has come out of the bed-curtains, and has guarded herself from further espionage. Another landing is gained; and still the demon ☞ is urging us upwards. We faintly sing the National Anthem (with our hat off), and, after the third verse, feel sufficiently invigorated to pursue our upward path. A few more moments of toil, and our exertions are crowned with success; we sink down exhausted at the door of the Daguerreotype room. No need now for the demon ☞ to point out what we have discovered. Ha! ha! We have discovered that Photography is, indeed, High Art.

PHOTOGRAPHY IN AN ARTISTIC LIGHT.

"By the aid of Photography," says Mr. Hogg, "any one may now become an artist." A dictum which—at the risk of making Mr. Hogg bristle up at my temerity—I deny, even in this artist-dubbing age, when people, from modists and mountebanks to ballet-dancers and barbers, dignify their trades, and call themselves "*artistes*."

But before a man can be an "artist," in the commonly received meaning of the word, not only is there required of him a very different kind of manipulation to that demanded in Photography, but also brains to guide his handiwork. There is a vast difference between a Claudet and a Claude; just as there is a vast difference between a steam engine and a "Hamlet." Each one is a triumph of inventive genius; but, how different are their natures!

The pictures of Claudet are the results of scientific invention: those of Claude, of inspired observation. There was poetry in a Claudet. The former can throw beauty and grace over the rugged and harsh; but the latter is the Gradgrind of Art, and represents nothing but stern facts. The Claudets can show but little judgment or discretion in the selection or rejection of component parts for their pictures: the Claudes chiefly depend upon this, and are able to omit at pleasure anything that interferes with the harmony of the composition. There may be a thousand Claudets, but only one Claude.

Photography is not (strictly) "Art;" neither is a Photographer an artist. Photography is but the handmaid of art. We hear and read a great deal of "Photography in its relation to Art;" but, if we inquire into that relationship, and search the registers of art for information on the subject, we shall find that the connexion is little nearer than that of a Scotch cousin "It must always be borne in mind," says Sir William Newton, "that, essentially speaking, the Camera is by no means calculated to teach the principles of art; but, to those who are already well-informed in this respect, and have had practical experience, it may be made the means of considerable advancement.

The greatest use that an artist derives from the Camera is, that it enables him to secure truthfulness of detail, when he might otherwise be unable to give it. He can paint, on the spot, the broad effects—giving all the play of light and shade, the local color, and the atmospheric tints, and then—having secured what the Camera could not give him—he can make his Calotype, and afterwards, by its aid, complete his picture at his leisure. This method would be especially useful to the artist, in views wherein he would have to paint intricate masses of architecture; and it would enable him to compete in accuracy of detail, with the painstaking fidelity of a Canaletti, or an Edwin Cooke.

And yet, after all, Photography can but help the artist up to a certain point. It cannot supply him with "the gift divine;" and so, when the pre-Raphaelites were accused of painting from Photographs, they replied, "Let our accusers do the same, and produce pictures of equal merit and truth:" and the accusers tried in vain.

The Camera will only help that painter who has deeply studied the principles of his art, and has worked faithfully and laboriously in the minute representation of Nature. We may rest satisfied that there is no "Royal road" to anything; and that genius only becomes great by careful study and perseverance. Power of hand, and freedom of execution in Art, can only be acquired by the diligent perusal—not of the works of the Camera, but of the works of Creation; and a scientific invention, like Photography, can never be made to usurp the place of true Art in the eyes of the true artist.

PHOTOGRAPHY IN A PORTRAIT-PAINTING LIGHT.

The application of Photography to portraiture was for a long time considered impracticable. No sitter could maintain immobility of feature for the space of twenty-five, or even five minutes; and immobility was quite necessary in a process where, if you wink your eye, you destroy it altogether, and where, if you sneeze, you blow your head off!

In the earliest days of Photography "it was required," says the Jury Report of the Great Exhibition, "that for a Daguerreotype portrait a person should sit without moving for twenty-five minutes in the glaring sunlight." We have not the pleasure of an intimacy of any one who ever performed this daring feat of salamanderism; but if the case was such as is represented, we are surprised that this twenty-five minutes' sitting was not made profitable to the Daguerreotypist by placing eggs beneath the sitter, and converting him into an Eccaleobion, or patent hatching machine.

It seems that the slow process was attributable to the plate being merely prepared with iodine, and the lens having a long focus When object-glasses with a shorter focus were constructed, and when Mr. Woolcott (of New York) had concentrated the light by substituting a concave mirror for the refracting glasses, and when Mr Goddard had added chlorine and bromine to the iodine, and when Mr. Fizeau had discovered his fixing coating, and when Mr. Claudet made public to the scientific world in England and France the invention of the accelerating process,—then the time required for the production of a portrait was diminished from minutes to seconds; nay, even (by Mr. Scott Archer's Collodion process) to a single second, and less than that! even to the flash of an electric spark.

Thus the difficulties that beset Photography in its attempts to become a portrait-painter were, step by step, overcome, and the Camera was now enabled to make faces, and otherwise to follow out the bent of its inclinations

I well recollect the time when I went in all the pride of my ungraduateship to have a photograph of my features struck off for the delectation of that Ann Elizabeth, of whom I was then greatly enamoured, and who, by the way, in less than three months returned me the portrait, and ruthlessly jilted me for a fellow who had not even whiskers! I well remember how I went elaborately got up for the occasion, how I tastefully arranged my hair before the Daguerreotypist's mirror, how I went into his little green-house of an operating-room, how I took my seat on a platform before the Camera with the sort of consciousness that Ann Elizabeth was going to be favored with something like a portrait.

I can call to mind how the Daguerreotyper fixed my head in a brazen vice, and having reduced me thereby to the verge of discomfort, maliciously told me to keep my eyes steadily fixed on a paper pinned against the wall, and to think of something pleasant. I can well remember how the Daguerreotyper thereupon left me, and how I, feeling exceedingly uncomfortable, and being lamentably ignorant that the operation had commenced, released my head from the vice, and promenaded the room for some ten minutes, admiring the various designs in chimney pots which are usually to be studied with advantage from a Daguerreotype studio. Then, hearing the sound of returning steps, I mounted my platform, and resumed my seat and vice.

I can call to mind *my* dismay when the Daguerreotyper took the plate out of the camera, and *his* dismay, when, on the development of the picture, he found that it merely contained a representation of the chair-back and vice. But we concealed our real feelings under these speeches:—"We have not been *quite* successful this time, sir! I must trouble you to sit again." "Oh! certainly."

I sat; and Anna Elizabeth had the portrait. Six months afterwards it was in the possession of Sarah Jane. The moral whereof may be supplied by the reader.

Years passed before I again honored the Camera by sitting to it. The improvements already referred to had in the meantime taken place, and, the tedium of sitting ten, or even three minutes, was removed. Another blessing also had come to pass: the vice was not absolutely necessary. It is said that there are some pleasures which can scarcely be distinguished from pain, and one of these must certainly have been the pleasure of sitting for your Daguerreotype, blinking at a piece of paper for ten minutes under a glass case, with your head compressed in a vice, and your limbs as stiff as biscuits. But now, the paper Calotype, or the Collodion process, was completed—so far as the sitter was concerned—in the twinkling of an eye, even in the opening and shutting of the slide of the Camera.

The operator was a Swede, light-haired, red-mustachioed, and with a fez. I sat at my ease on a couch, backed by a screen of black velvet. The good-natured operator, in the best English he could master, explained to me the nature of the process (even taking me into his dark den of magic), and remarked with great truth,—"When beebles do come for vaat you call bortraits, they most not dink dey are in the leetle rum by demself, bot dey most dink that all de world look at dem! dat they are having deir bortraits bainted before a crowd, oh! so vast! dat dey are on the stage of de theatre, wid den dousand beebles all a looking at dem, and not shot up here in de leetle rum, by demself. Now, sare! gompose your feature for de bortrait: and when I say 'Now!' de operation will gommence"

I did as I was directed, and looked as composed and grave as if I was facing an Exeter-hall audience in the merry month of May. But when the Swede lowered his fez and red moustache, and crouched down behind the Camera, and suddenly lifting up and shutting down the slide, exclaimed, "den dousand beebles look at you!" it was altogether too much for my risible faculties. The ridiculousness of the situation came over me, and I burst into such a sudden and hearty fit of laughter, that my (calotyped) head was quite blown off, and the Swede had all his trouble over again. I fear that I must consider myself a bad subject for the Photographer.

One would think that a Daguerreotype *must* be a likeness, and yet this is by no means the case. There are many Photographs that, from being ill focussed, or from other bad management, can scarcely be recognized as the portraits of those who sat for them. We look at them, and we feel inclined to echo the critic to whom the portrait-painter was exhibiting his *chef-d'œuvre*, and say, "Yes, it's certainly like! all but—the face!" Mr. Robinson's coat and waistcoat are capital! and we know Miss Brown's dress too well to make us doubt her likeness for an instant.

The succes of a photographic portrait depends also upon the skilful treatment of its shadows, for which purpose a diffused, moderate light is better than the full glare of the sun; and some Photographers accordingly doctor the sun, and tone down his high lights by the little mesmeric ceremony of waving large velvet screens over the head of the sitter. Moderately gloomy weather, therefore, by throwing Photography under a cloud, brings out a portrait in the most favorable light. In this, as in life, we see that uninterrupted sunshine is not so beneficial for us as that which has been softened with the hue of sorrow. The continued sunshine of prosperity may not be borne with advantage; it often produces features as harsh as those contrasts which are created in the photographic portrait by the too liberal gift of the sun's golden rays.

But it is of no use your going to have your portrait taken by our friend Camera unless you can sit still. Our mutual acquaintance, Miss Fidgetts, has been particularly unfortunate in this respect; and a Photograph, that shall represent her with no more than the ordinary number of features, has yet to be taken. A very bad subject for the Daguerreotype would also be that palsy-stricken old lady, of whom it is recorded in the popular song of "We're all nervous," that, when she endeavored to gratify her organs of smell with a pinch of snuff, she always, from very nervousness, applied the pinch to one of her organs of vision.

In fact, you must be a particularly steady character if you want to form the acquaintance of our friend Camera. If you are at all unsettled in your habits, he will have nothing to do with you. You must be a model of stiff propriety and rigid deportment, like Mr. Turveydrop. If you are addicted (as I hope you are not) to the worship of Bacchus, and should, on a certain evening, make an undue number of libations to your deity, I should advise you not to call on our friend Camera the next morning, but to tarry until the tremulous motion of your head and hands shall have subsided into sober steadiness. You may depend upon it, that when Mr. Richard Swiveller was in that state which he designated as "having the sun very strong in his eyes"--by which expression (adds his biographer) he was understood to convey to his hearers in the most delicate manner possible, the information that he had been extremely drunk—

you may depend upon it that he would not have taken that opportunity of having (in another sense) the sun very strong in his eyes by placing himself under the skylight, and before the glass, of our friend Camera.

No! you must be a model of steadiness, if you wish to appear well before our friend. If you are at all like Mr. Funkey—who was seized with one of his nervous fits of tremulous agitation just at the critical moment when the slide was pulled up and the cap was pulled off—you will appear on the plate or paper as having three noses, double that number of eyes, and a prodigious mouth that stretches from ear to ear; in short, presenting an appearance that fully realizes our conceptions of "three single gentlemen rolled into one"

Another point to which you must attend is that of Dress. Our friend Camera is very particular about the habits of those who call to sit with him; and unless you go with him suitably clad, he will not represent you in as pleasing a manner as you may desire. Through Mr. Mayall, he has given to his lady and gentlemen friends the following

"SUGGESTIONS FOR DRESS.

"Ladies are informed that dark silks and satins are best for dresses; shot silk, checked, striped, or figured materials are good, provided they be not too light. The colors to be avoided are white, light blue, and pink. The only dark material unsuited is black velvet.

"For Gentlemen, black, figured, check, plaid, or other fancy vests and neckerchiefs are preferable to white.

"For children, plaid, striped, red, or figured dresses."

Thus the King Camera prescribe his Court Costume.

You will percieve, by the above, that the chief taboosed color is white; so that, although *we* may regard

"When first she wears her orange flower,"
"A maiden in the day

as being dresed in as becoming and interesting an attire as it may be possible for a lady to assume, yet you see, our friend Camera is of a different opinion, and would even prefer seeing the young lady clad in a suit of solemn hue. And our friend, who, as you may perceive, is rather peculiar in his notions, would make no more of this jessamy bride than he would of the parson who married her; indeed—as he never approved of the surplice question—he set the poor parson altogether on one side, and refuse to look at him, unless he came in his black gown—which as we all know, is the customary clerical court dress. The photographs of people in white dresses would appear to be the portraits of as many ghosts, and would lead us to echo Dr. Johnson's questions, "Where do the ghosts procure their clothes?" A lady may go mad in white satin, and confidante follow her example in white muslin, on the stage; but, if they were to present themselves in that plight before our friend Camera, he would have nothing to do with them.

You should be especially careful, therefore, when you call upon him, for, as he sees you, so will he represent you.

From the Jour. of the Phot. Soc.

NOTES ON COLLODIO-ALBUMEN.

To the Editor of the Photographic Journal.

Sir,—Since the publication of my letter on the simplification of the collodio-albumen process, in the last Number of the Journal, I have received a mass of correspondence on the subject, which affords satisfactory evidence of the interest now taken in this branch of photography.

The chief difficulty seems to be the formation of blisters on the plate during development. I have made a long series of experiments to discover the cause and remedy of this defect; and the following is the result.

Blisters are of two kinds: the one, hard and full of liquid, dries into a hard ring, and shows in the print; the other soft, and dries flat without injury to the negative. The use of thin collodion is the cause of the large hard blisters. Add a small quantity of pyroxyline to the collodion, and the blisters decrease in size, but are still injurious. Make the collodion nearly as thick as the albumen, and the blisters disappear. Increase the thickness of the collodion, and the soft blisters rise. It will be seen from these experiments, that the collodion must be nearly as thick as the albumen, and that it is better to have the collodion too thick than otherwise. This, I believe, is contrary to the usual teaching; but I have made so many experiments with collodions by different makers, that it may be relied on as correct

Blisters will arise from the use of a stale egg in the albumen. Gas is eliminated, which aerates the whole mass, and blisters form before the plate is dry in the first operation.

It has been usual to recommend the addition of a large quantity of glacial acetic acid to the nitrate of silver bath, about fifteen minims to the ounce; this is quite useless, and has the disadvantage of causing the bath to turn a dark-brown color after a little use. I employ a slightly acidulated bath; and after six months' work, it is as colorless and efficient as when first made.

In my last letter I recommended that the albumen should be poured back, after use from the plate into the bottle. This was a mistake, as the water dripping from the plate dilutes the albumen; and it will be found impossible to obtain intense negatives, if the albumen be not of the proper thickness.

Henry P. Robinson.

COPYING STAND—MOUNTING PHOTOGRAPHS.

To the Editor of the Liverpool Photographic Journal.

Sir,—Perhaps you could inform me through the next number of the *Journal* of a suitable stand, or something of the kind, for copying photographic portraits, prints, engravings, &c., or applicable for all sizes, from the small $\frac{1}{9}$ to large engravings, and so that they could be easily placed on and taken off, and arranged at any angle at pleasure; also please give me full and clear directions for making some sort of covering, or small tent, for keeping out diffused light from the camera whilst working the collodion process in an open garden. You could also, perhaps, inform me how the Americans mount their mat, glass and picture, as they do not use any preserver, and their pictures always appear very free from dust, &c.

Philo Photo.

[1. M. Claudet uses a large board, well framed together, and hinged to a stout block of wood attached to a vertical sliding pillar which can be fixed at various heights by a screw passing through its exterior sheathing. The board can thus be raised or lowered, and placed vertical or horizontal, to fasten on the print by drawing pins. If the stand has only three legs the back one can be raised by a wedge, which will throw the board, now supposed to be vertical, into a position inclining forwards. In this latter case the whole arrangement must, of course, be held up by a strong chord, or better, by any non-elastic support, unless the gravity of the whole is sufficient to allow the inclination of the board and print. To incline the board backwards at a given angle, an iron quadrant arrangement and screw is employed. It is quite a piece of workmanship. 2. Make a hollow truncated pyramid of mill-board, and line it with black velvet; then place the *base* of the pyramid against the front of the camera and arrange so that the lens shall be seen from every part of the background you wish to include. This as a rule will answer your purpose, but there are cases where nothing short of a tent, or an immense perforated screen will suffice. 3. We cannot at present answer your last question.—Ed. L. P. J.]

The Americans "mount their mats and glass" in so many different ways, we do not wonder at the inability of the Liverpool editor to answer. They take good care to clean the glass well, and just before putting the glass and mat together dust it off with a fine camel hair brush. If an ambrotype the mat is placed between two glasses and the whole fastened together by strips of sealing-paper. If the ambrotype is to be viewed on both sides, two mats are used, placed outside of the glasses and secured by sealing paper and preservers. It is very simple.—Ed. *P. & F. A. Jour.*

From the Liverpool Photographic Journal.

THE CHEMISTRY OF THE COLLODION PROCESS.

BY MR. HEPWORTH.

Of the many processes that have been devised for preparing a surface sensitive to the influence of light, none I believe possesses so many advantages, for none is so delicately sensitive, produces such beautiful results, is so easy of manipulation, and has consequently become so popular, as that discovered by the late Mr. Scott Archer, namely, the collodion process; and it is to the consideration of this that I desire to direct your attention. As I wish this communication to be as practically useful as possible, it is my intention to allude but slightly to, or omit altogether, such parts of the theory of the process as are but imperfectly understood, and confine my observations to such practical details as I trust will be interesting to all.

Whenever great sensitiveness is required, whether in the daguerreotype, calotype, waxed paper, albumen, or collodion processes, the basis is alike, namely, the iodide of silver, a yellow powder readily prepared by the addition of a soluble iodide to a solution of nitrate of silver. Whether this compound when in a state of purity, is altered by light or not is at present a debateable question; and therefore, in accordance with the resolution I have adopted, it is not my intention to repeat the various opinions that have been expressed upon the subject. What we have to deal with in due time, is that iodide in contact with free nitrate.

Though the processes I have named agree as to the basis employed, they differ as to the mode in which it is converted into a surface fit for the purposes of the photographer; and the superior rapidity of the collodion process is attributed more to the film being used in a moist state than to any peculiar influence that may be exerted by the components of the collodion, though these may not be without their effect.

In accordance with the practical tenor of this paper, I will commence with a description of the manufacture of collodion, afterwards explain the manner of making the sensitizing, developing, and fixing solutions, accompanied by such remarks upon the theoretical and practical action of each as I think may be interesting and useful.

Collodion, it may scarcely be necessary to observe, is pyroxyline, or gun cotton, as it is called dissolved in a mixture of alcohol and æther. Pyroxyline itself is produced by the action of strong nitric acid upon lignine. Lignine is a definite compound, existing in various forms, and constituting, as its name denotes, the fibrous portion of wood. It is also the chief constituent of linen, cotton, paper, and other substances. Now, when cotton fibre, the body most generally used for the purpose, is submitted to the action of nitric and sulphuric acid a remarkable chemical change takes place, though its *physical* properties remain almost unaltered, for it has now become soluble in various liquids that previously had no effect upon it, more especially in having become soluble in alcohol and æther, as well as being highly explosive. Nitric acid is the agent that has effected this change; but as pyroxyline is soluble in comparative weak, but not in strong NO_5. sulphuric acid is added, which, having a strong attraction for water, abstracts a portion from the nitric acid, thus increasing its strength and preserving the pyroxyline from solution. Chemists are acquainted with what is called the law of substitution. By this law a portion of chlorine, or NO_4 peroxide of nitrogen, may take the place of H in a compound containing it, and that, too without altering its appearance, or sometimes even its chemical properties: Gun cotton is a remarkable instance of this—$C_{12} H_8 O_8 + NO_5 = C_{12} H_7 NO_4, HO$. By a reference to the formula, it is seen that the 5th, atom of O contained in the NO_5 takes ones of H and forms H water O, the NO_4 then steps in to fill the gap which the atom of H has left. All this is done with so little disturbance that even the fibrous structure of the cotton remains as before. Such is the decomposition that takes place in the preparation of pyroxyline, yet the qualities of it may vary considerably; for instance, we may have a very explosive cotton that is insoluble in æther, a cotton that forms such a glutinous solution that an even film can never be obtained from it, and, next, a very soluble cotton that leaves on evaporation an opaque, rotten, and worthless coating upon the plate. These different varieties depend upon the strength of the acids used, and also upon the temperature of the mixture. If the nitro-sulphuric acid is too strong the cotton is highly explosive, but insoluble in æther and alcohol; if too weak the fibres are gelatinized and partly dissolved by the acids between their points pyroxyline of various degrees of solubility and tenacity may be procured.

From the difficulty experienced in procuring nitric acid of a strength suitable for the purpose, the most convenient mode of preparing gun cotton is by the addition of sulphuric acid to dry nitrate of potash in fine powder. Nitrate of potash is an anhydrous salt; that is, contains no water; and when it is mixed with sulphuric acid the latter having a stronger attraction for potash than is possessed by nitric acid, it unites with it to form bisulphate of potash, and the pure nitric acid is set free. When cotton wool or paper is immersed into this mixture, the nitric acid immediately acts upon it, and effects the change that I have already described. Many operators mix a small quantity of water with the sulphuric acid; this, however, in practice I find to be disadvantageous, as such a mixture frequently gelatinizes the cotton, or causes it to be partially dissolved. The mixture that I have found to be most successful is that recommended by Mr. Hardwich in his "Manual of Photographic Chemistry," namely 600 grains of nitre mixed with 12 fluid drachms of sulphuric acid, this is to be raised to a temperature of 130°, and tufts of cotton introduced, stirring occasionally with a glass rod for about five minutes; afterwards thoroughly wash and dry. If paper should be used instead of cotton, the immersion requires to be prolonged till it has remained in the mixture for 15 or 20 minutes. I may here remark that paper gives a tougher film than cotton, and is consequently preferable for the manufacture of negative collodion. I shall next have to call your attention to the solvent of the pyroxyline, namely the æther and the alcohol. These should be as pure as possible. The bad qualities of collodion, however, I believe to be more dependent upon the alcohol than the æther, unless the latter be evidently acid or changed by age and exposure to air. The reticulated appearance of the film produced by so many collodions, and which is so frequently a source of annoyance to photographers, almost invariably arises from the quality of alcohol; that which is generally employed is the ordinary rectified spirit of commerce, about 56 O.P., and containing a large percentage of water; this, on account of the quantity of water it contains, can be used but sparingly, in about the proportion of two parts to six of æther; if more be employed, we almost invariably have reticulation, whereas alcohol of a high specific gravity can be used to almost any extent without producing this effect. Besides, the necessity of absolute alcohol being used will be more apparent when we bear in mind that the sensitiveness of collodion is dependent to a considerable extent upon the proportions in which these are employed; the larger the quantity of alcohol the more sensitive the film, and *vice versa.* Those, however, who employ iodide of potassium for iodizing collodion, here meet with a difficulty, for absolute alcohol is a bad solvent for this salt, and they fail to get a sufficiency of it dissolved in the quantity of alcohol that they usually employ. I should advise them therefore to increase the quantity of spirit, and they will I think, in every respect, improve their collodion. I may here mention that the mode by which I procure alcohol of a high specific gravity is to mix dry pearl ashes with ordinary spirits of wine, shake it frequently during several hours, and then distil. Æther may be rectified in the same manner, but a good sample of ordinary washed æther scarcely requires re-distillation. The iodides most generally used for iodizing collodion are those of potassium, ammonium, and cadmium; some operators prefer one, some another, and some a mixture; either of the latter is very soluble, but that of ammonium is found to be very liable to decomposition, the collodion soon assuming a brown tint from liberation of iodine. Some persons add a small quantity of ammonia to the iodizing solution, to prevent the change taking place; it is, however, a dangerous experiment, for nothing tends sooner to ruin a bath than the faintest trace of ammonia; after two or three plates coated with such collodion have been dipped in the bath, fogginess is the the invariable result.

Sensitiveness of collodion is also much influenced by the quantity of iodide that it contains. As a rule, I believe that most of the positive collodions in use are over oxidized, for it is invariably found that a moderately translucent film produces more definition and half-tone than one that is creamy, the latter, however, is generally preferred by those who are not very experienced photographers, inasmuch as it is less sensitive, and therefore more manageable, a proficient in the art will, I think, prefer a *semi transparent* film and a neutral bath.

BATH.

No less important than the collodion is the preparation and preservation of the nitrate bath. Its qualities are: that it should be transparent and colorless, free from alkali and nitric acid, and incapable of dissolving iodide of silver. Now a solution of nitrate of silver in pure water, is not affected by light, even by exposure to the brightest sunshine. If organic matter, however is present, light has the effect of reducing the silver, which falls to the bottom in the form of a black and insoluble powder; this shows the necessity of preserving a bath that is in use, and which in consequence becomes considerably impregnated with organic matter derived from æther, &c., in some place sheltered from the light. The bath for positive pictures should be made from nitrate of silver in crystals; these, before solution, should be thoroughly dried with considerable heat, though not sufficient to fuse them. Nitrate of silver is very liable to be contaminated with nitric acid being frequnantly crystallized from an acid solution, we, therefore, dry them to expel this acid, which, as I will afterwards show, has a prejudicial effect. Iodide of siver is to some extent soluble in a solution of nitrate we must not consequently fail to saturate the bath with this compound previously to its being used for sensitizing the plates, otherwise, if they remain in it a short time longer than is absolutely necessary to perfect the film, it begins to eat away, and thus to produce an irregular action of the developer.

The presence of any acid in a bath invariably diminishes the sensitiveness of the plate, yet as a bath neutral to test paper is liable to have an alkaline reaction on the plate from the presence of oxide of silver, and consequently has a tendency to produce foggy pictures, it is always advisable to add a minute quantity of acetic acid, one drop of glacial acid being sufficient for several ounce of bath. Nitric acid must, however, if possible be avoided, as it always very powerfully retards photographic action, though it often with a collodion yielding a creamy film produces very bright pictures.

NEGATIVE BATH.

I have just stated that a positive bath should be made from dried crystals of nitrate of silver, but not from fused. A negative bath, on the contrary, should be made from fused nitrate, as in this state it is invariably found to produce greater intensity When it has been kept in a state of fusion for a short time, part of the nitrate is decomposed, a portion of its oxygen is expelled, and a salt of a lower degree of oxidation remains, namely—the nitrite. This salt is much more readily reduced than the nitrate, owing to its being a compound of a weaker acid, and is, therefore, by prolonged development more capable of yielding greater intensity. In a positive, you will bear in mind, we want sensitiveness, or a facility of reciving impressions, with rapidity. In a negative, on the contrary, *intensity* or thickness of the deposit of silver upon the plate, so as to produce opacity in transmitted light, and whenever nitric acid is present in a negative bath feeble pictures will be the certain result. Its contaminating influence may to a considerable extent be counteracted by the addition of an acetate of any kind: by this means we substitute free acetic acid for nitric.

Many persons are accustomed to add alcohol in small quanties to the nitrate bath, with the intention of increasing the sensitiveness of the plate; this it certainly does effect, but at the same time, I think, it is not an advisable addition, for I have invariably found that the pictures produced by it have too much intensity in the high lights; for instance, in portraiture the face is almost invariably overdone before the drapery, if dark, has had time to make any impression. On this principle it is, too, that the best photographers condemn the addition of acceleraters to collodion.

DEVELOPMENT.

The next division of my subject, and that which is least susceptible of a satisfactory explanation, is the bringing out of a latent image by means of a developer. Silver has, comparatively speaking, but a feeble affinity for oxygen—so slightly so, indeed, that light alone will reduce most of its salts, more or less, completely to the metallic state; the light, however, that passes through the lens of the camera is of such small intensity, that photography could have made but little progress unless we possessed the means of perfecting that action which the feeble light of the camera has already commenced upon the sensitized plate. Of what the primary state of that action really consists I must confess my total ignorance. 'Tis true that theories, more or less plausible, have been propounded by gentlemen of a philosophical turn of mind, but these theories appear to me but a cloak for the concealment of ignorance. We know, however, that a remarkable, though an invisible, alteration must have been effected in the constituents of the film, or the application of a developer could never have produced the beautiful results that are obtained.

It seems strange, too, that the iodide of silver, a compound that of itself is least susceptible of the influence of light, is of all others the most sensitive when aided by the application of a developer. Development is essentially a process of reduction. As I before stated, constituents of the oxide and salts of silver are held together by very feeble affinties; and, consequently, slight disturbing causes are sufficient to effect a molecular change in the arrangement of their elements. This change seems to be commenced by a very feeble light, and would be unknown to us but for the application of some chemical agent to render it visible. This agent we term a developer, and those most generally employed are solutions of the salts of protoxide of iron, gallic, or pyrogallic acid; these, having a tendency to absorb oxygen when brought in contact with silver salts, reduce them to the metallic state. The appearance of the precipitate of metallic silver thus obtained varies much in color, dependent upon the reducing agent employed, and also upon the manner in which it is used. If gallic or pyrogallic acid be employed, it is a black powder, whilst the salts of iron, especially with the addition of nitric acid, produce a sparking precipitate, like frosted silver. In this case the excess of nitric acid impedes the action, and the particles, being formed more slowly, are large and crystalline, the color of a metal in mass being no indication of what it will be in fine powder. There are two distinct oxides of iron that form salts—the first consisting of one atom of O in combination with one of iron, the second consisting of two O to three iron. Now the salt of these is a very unstable compound, in consequence of its tending to pass into a higher degree of oxidation, and on this depends its utility as a developing agent; for, when brought in contact with oxide of silver or its salts, it appropriates to itself the oxygen, and precipitates the silver in a metallic state; and this is the cause, too, of a solution of protosulphate of iron so speedily becoming discolored when exposed to the air.

Gallic acid, as you are aware, is procured from nut galls. It is but a feeble acid, and forms salts with the alkalies and earths, but not with the noble metals (so called from their possessing a slight affinity for oxygen, and consequently preserving their lustre unimpaired when exposed to air, moisture, and other influences) these it precipitates in the metallic state.

Pyrogallic acid, prepared by heat from gallic acid, is not an acid, except in name, forming no salt nor affecting litmus paper. It possesses however, a reducing power much greater than either the proto-salts of iron or gallic acid. So powerful is this, that it requires the addition of some other acid to retard add modify its effects; hence we usually employ acetic acid in our developing. We find that the action of a developer depends upon the reduction of *oxide* of silver to a metallic state. What we have to deal with, however, in the collodion film is *iodide* of silver, and on iodide of silver these reducing agents have no effect; for the pure iodide may be exposed to sunshine in presence of pyrogallic acid without being discolored. How, then, in this case, does a developer act where there is no oxygen to be absorbed? Two theories have been proposed to explain the matter. By the first it is supposed that an atom of water plays an important part in the process, by furnishing O. to the developer and H. to the iodine, which latter forms free hydriodic acid, whilst the silver is precipitated, $\mathrm{Ag\,I} + \mathrm{HO} + \mathrm{Pyro} = \mathrm{Pyro} + \mathrm{O} + \mathrm{HI}$. This, however, is not entirely satisfactory; for as I have just stated, pure iodide of silver, exposed to light in the presence of pyrogallic acid is not blackened. A more satisfactory theory is that which supposes the metallic deposit to be entirely derived from the free nitrate of silver present on the plate, or added to the developer, and that this salt alone is reduced and deposited only on those parts of the plate where the light has effected some mysterious molecular change. I fear that I have scarcely succeeded in expressing myself intelligibly on this part of my subject. It is, I believe, acknowledged to be the most difficult part of photography. As our knowledge of the properties of light, and of those agents which we employ, is increased, we may hope, I trust, to arrive at a more satisfactory explanation of every department of photography. In the choice of a developer for positive pictures much depends upon the taste of the operator; for some prefer a bright metallic picture, striking constrasts of black and white, others, and I think more artistically, prefer that of a more subdued tone. The bright pictures are always produced by the employment of the protosulphate of iron in combination with nitric acid, the warmer tones by adding to this nitrate of potash, or by using nitrate of protoxide of iron, or pyrogallic acid with nitric acid; and where so much depends upon the taste of the operator it will be impossible to give a formula that will be generally acceptible. That which I prefer, and have used with some success, is a modification of one that appeared some months ago in the *Liverpool Photographic Journal*, consisting of protosulphate of iron, nitrate of potash, acetic and nitric acid I employ.

15 grains of protosulphate,
3 grains of nitrate of potash,
5 drops of acetic acid, (glacial),
2 drops of nitric acid,
1 ounce of water.

I now approach the end of what, I fear, has been but a tedious essay. The last part of the process, namely, the fixing of the picture, is effected simply by the removal of such portions of the iodide of silver as have been unaffected by light, or the deposit of metallic silver. This is accomplished by the the application of some chemical capable of dissolving it. The agents usually employed for the purpose are hyposulphite of soda and cyanide of potassium, preference being generally given to the latter salt. The effect, however, in this case is not a simple solution, but a chemical change; for the iodide is decomposed, converted into cyanide of silver, and this is a soluble in cyanide of potassium, forming a double salt. It only remains for me now to state that this subject will be open for discussion; and I shall be glad to hear the remarks of any members upon it, and to reply to such questions as I may have the ability to answer.

From the Jour. of the Phot. Soc.

THE SALTS OF ALUMINIUM IN COLLODION.

To the Editor of the Photographic Journal:

Sir,—I find that collodion containing iodide and bromide of aluminium gives very good results, and that the film in point of sensibility equals that produced by the corresponding ammonium compounds, to which indeed these salts, both in general appearance and solubility in alcohol, bear a close analogy; while I hope that a more extended experience may prove them to have a stability as great as those of cadmium. They may be advantageously prepared by saturating respectively hydriodic and hydrobromic acids with gelatinous alumina and evaporating carefully to dryness.

H. Draper.

From the London Art Journal.

EGYPTIAN AND ASSYRIAN ART.

BY THE REV. CHARLES BOUTELL, M. A.,

Hon. Sec. of the London and Middlesex Archæological Society, and of the Architectural Museum, etc.

It was in the early spring-time of the world that Art arose, and grew amongst men with a rapid and vigorous growth. The valley of the Nile was the earliest scene of her beneficent working: here, in the first-born of the empires, and beside the great river which, throughout all ages, should be the ever-eloquent though silent witness to her achievements, Art began to declare herself to be a powerful refiner of human life, and also a faithful historian of human sentiments and actions. The ancient Egyptian remains which time, having stamped with the seal of tens of centuries, has yet spared for us to study with wondering veneration, standing as they do at the threshold of the history of Art, are, from the very circumstance of their pre-pre-eminent antiquity, invested with a peculiar interest; and this interest gathers strength from the consideration that amidst the works of the primeval artists of Egypt we learn what is the real and true character of all Art, and what are its genuine and distinctive attributes in every age and in all countries. Art in Egypt we see to have been strictly national, essentially historical, and graphically expressive; while it maintained an inseparable union between its various forms. It was the one expression of the Egyptian mind, speaking its deepest thoughts concerning Egypt. Such would be the natural, and, indeed, the inevitable character of Art in the days of its first youth. Egyptian Art demonstrates this fact, and it also does much more than this—for it shows that in whatever degree Art may be beguiled to fall away from its original standard of unity, of truthfulness, and consistency, in that degree it degenerates and becomes enfeebled. This lesson, so powerfully taught in the first instance in Egypt, received abundant corroboration in after-times and in other regions. In our own country, and at the present time, this same lesson may exercise an influence of special value. We are now, as a nation, votaries of Art. Art has become with us both the passion and the fashion of the day; yet we shall scarcely be prepared to boast of our present Art-achievements. Perchance the venerable teaching of far-off antiquity may accomplish, at least, something of advance and exaltation for us, if we will but search out and accept its lessons. Very much has recently been effected by equally enterprising and judicious exploration and research in ever-wonderful Egypt; and photography has joined its powers with those of the pencil in a strenuous effort to set before us faithful portraitures of every variety of Egyptian Art-work; and, besides, with the view to popularise the study of Egyptian Art, the Crystal Palace has produced its Egyptian Courts. It is my present purpose to point out in what manner these Courts discharge the office of teaching; and I shall hope to do this the more successfully if I first indicate the principal points in the history of Egyptian Art, which these Courts were designed to exemplify and illustrate: in other words, it appears to be most desirable for me to sketch out what we ought to be able to learn here, and then to consider how far such expectations may be realised.

Universal experience has shown that Art, however consistently true it may continue to its own peculiar character in any country, invariably passes through certain distinct phases, and appears under several determinate conditions; and it is highly remarkable that in almost every instance Art has marked out for itself three grand eras or periods in its career:—first there is the archaic period; next follows, generally with a rapid step, the great and most perfect period; and then, in its turn, the age of lingering decline succeeds, and points to a fall which sooner or later must be expected. In Egypt the three periods are very distinctly marked out, notwithstanding the marvellous rapidity with which Art here mounted to its zenith. Of the archaic period the great pyramids are the type; Thebes, in the plenitude of its power and grandeur, marks the culminating era; and under the Ptolemies comes the decline, which should close in the final catastrophe of Rome. We shall, accordingly, look for illustrative examples of these three great Art-eras in the Egyptian Courts, as also for such a sustained chain of minor illustration as may lead us on from one epoch to its successor.

Again, in Egypt Art never admitted any absolute disruption of its unity, whether of aim or expression. The Egyptians did not practise painting as one art, and sculpture as another art, and architecture as a third; but architecture, and sculpture, and painting, were, both in the Egyptian mind and in the Egyptian practice, so intimately united, the one with the other, that they were actually inseparable. These three made one Art—the *Art*, not the *Arts*, of Egypt; hence the admirable truth of each great form of artistic working. From its union with the other forms it received fresh strength and increased effectiveness, while its own attributes were developed with more complete fulness and more absolute truth. Always obedient also to the laws which the national religion imposed upon it, Art in Egypt was ennobled by the religious solemnity which enhanced its intrinsic worthiness. Always limited in its direction by its religious associations, Art in Egypt is seen to have nevertheless combined the most exalted sublimity of conception with a delicate finish in execution which cannot be surpassed. This Egyptian Art thus was true Art, because it was original; also because it was at once truthful and suggestive, energetic and refined. We should expect to discover in our Egyptian Courts specimens of each of these qualities of Egyptian Art; and here we should also expect to learn how it was that the artists of Egypt maintained that unity in Art which it was their great glory that they did maintain; as it is the peculiar opprobium of the present time that each form and expression of Art should have been compelled to stand alone, and should have been regarded as complete in itself and in its solitary isolation—a picture, or a statue, or an edifice, now being held to be the three distinct works of three distinct arts, in place of the edifice being designed to comprehend the works of both sculptor and painter; while painter and sculptor alike designed and worked under the idea of attaining to real excellence only through their association with the architect And, once again, the Egyptians were builders of temples and constructors of tombs on a scale both of magnitude and of magnificence unknown to other nations: it was their habit, too, to accumulate building upon building, and mass upon mass, each particular work being, when complete, the aggregate result of long-continued working; and they delighted in surface decoration, produced by means of shallow *quasi* relief carving, aided by a free use of color; and they gloried in giving utterance to their loftiness of conception through forms of colossal magnitude: all these things, consequently, ought to be represented, graphically and after an impressive manner, in these Courts.

Before entering the Egyptian Courts, it must be called to remembrance that *models* only can be expected to be found—models which tell their tale truly indeed, but yet under much of disadvantage. They cannot emulate the vast scale of the originals; they cannot exhibit their imperishable materials; neither can they gather around themselves the associations and the local accessories of actual Egyptian temples or tombs. We have here to deal, I repeat, with models only, not even, as in the case of the sculpture, distinctively so designated, with casts. A model of a pyramid has not been attempted; perhaps the attempt, if restricted to a part only of one of these mighty piles, might have been eminently valuable. As it is, the Courts show nothing of the works of Suphis or Cheops, and his pyramid-building brethren; and, therefore, we have to commence here with the second era in Egyptian Art—the era of the Theban monarchy. In imagination we may gaze still deeper into the depths of the past, until we realize some image of the pyramids of Memphis—that most ancient group of monuments in Egypt, and, as it would seem, in the world—themselves "examples of a style absolutely independent of all previous efforts of human Art either in Egypt itself or in any contemporary nation." And when we seek, higher up the river-valley, for the remains of royal Thebes, we shall go thither impressed profoundly with the conviction that the works of the pyramid builders abound with evidence of their having attained to a degree of excellence in Art which Karnac itself could only rival—so wonderful was the elastic energy with which Art reached maturity in this congenial region. Leaving then, the pyramids on the western side of the Nile, and ascending the stream till we have entered the Thebaid, or Upper Egypt, we come upon the obelisks and temple groups of the eastern bank of the river. Columnar architecture now appears to prevail, and on every side there are evidences of powerful kings and flourishing cities. The columns here are sometimes seen to have been set not merely in ranges, but in a dense array over the greater part of the entire area of the halls of the temple-palaces. The crystal Palace Court illustrates this most remarkable system of arrangement effectively and well—as well and as effectively as it could possibly be done on a greatly reduced scale, and with such different materials, and without the river, and the sun, and the valley of Egypt. Of the original hypostyle Hall of Manepthah, at Karnac, perhaps the most sublime of man's works, an idea may be imagined from the Sydenham Hall of Columns. I know not how to award a higher praise to the model. The Great Temple, of which this wonderful hall became the crowning glory, was commenced by Osortasen, one of the mightiest of the Pharaoh's; and many of his successors sustained the series of structures which combined to form the whole. On the opposite side of the Nile arose the scarcely inferior work of Ramses the Great, the Sesostris of the Greeks. A part of this structure has been reproduced in the Egyptian Courts. The great Temple of Medinet-Habou, the work of Ramses III., contributes one of the most remarkable of the scenes which are rendered, with exact truthfulness to the Egyptian style, on the walls. The original forms one of the grand group of Thebes, though it shadows forth tokens of the then approaching decline in Egyptian Art. The façade of the outer Court exemplifies another striking feature in the works of the great era: this is the column as it appears in the rock-cut temples of Nubia and elsewhere of the age of Ramses II., and which exhibits the evident prototype of the Greek Doric order of a later age. Various details and decorative accessories from works of the great period are also represented in these Courts, which carry onwards to the succeeding age their graphic history. Abou-Simbel, Dendera, and other well-known names, contribute from their varied stores; and the whole collection of examples is enriched with groups of casts from works in sculpture, including a cast of the celebrated Rosetta Stone. The exceeding beauty and the essential truthfulness of the Egyptian style are eminently apparent in the columns which were so freely used. The models of these claim attentive study. It will be observed from these capitals that the ancient Egyptian artists derived their inspiration from that great authority in Art—Nature. The luxuriant vegetation of their country furnished the types for their fairest and their most effective designs. Skilfully, and with most beautiful appropriateness, they adapted the lineaments of the natural objects to the requirements of their art, at the same time their art became indelibly impressed by them with both the beauty and the truth of Nature. Examine one of their papyrus-capitals: it is not a block of stone, about which the rich foliage, or perhaps the flower, is the capital. Other capitals, designed in a questionable taste, are ornamented with, or formed of, heads or figures of personages famous in Egyptian story. The Egyptians also employed colossal figures in situations which rendered them almost *quasi* columns or caryatides; a close examination, however, will show that such statues are in reality addititions to the true architecture, and not adaptations of the expressions of one form of Art to the requirements and uses of another.

The teaching of the Egyptian Courts cannot fail to combine for the careful student much of gratification, with more of valuble instruction. He will see in them true Egyptian forms, and characteristic Egyptian grouping and combination. The system of surface-decoration is also admirably shown, with its quaint yet truly artistic delineation of Egyptian history. The very colossi are realised in the enormous figures which now sit and gaze, with Egyptian calmness, upon a natural giant from a new world and which bears the name of a hero greater than Sesostris. The sphinx-avenues also are reproduced, and the Duke of Northumberland's famous lions bear them company. An obelisk, like a pyramid, is wanting; neither is there such a vivid realization of a rock-tomb as Belzoni gave us more than thirty years ago. Another want is a model which does not look quite new, fresh, and perfect—a model which would show the touch of time and the rougher grasp of violence. Such models or casts, with all the devastations which the originals have had to endure visibly portrayed upon them, are needed throughout these Fine-Art Courts. We require thus to see the originals as they are, no less than to have them again invested with the perfectness of their first condition. I have already noticed this want, which in the Egyptian Courts is felt with peculiar keenness; and I have also invoked the aid of photographs to supply, in the Courts themselves, what they can tell us so powerfully of the actual present state of the Art-productions of the past. These, with some clear and precise indication of the historical order of the model-works, would render the Egyptian Courts worthy of the highest admiration.

In close association with Egypt ASSYRIA now holds its proper place in the history of Art. A few years have sufficed to clear away from this marvellous region the deep obscurity which, during long centuries, had settled heavily upon it. The great valley-plain of the Tigris and the Euphrates has become as visibly and vividly historical, through the magic agency of its Art, as the Nile valley itself. Nineveh is no longer a mystery, and Assyrian history no longer remains a void. An Assyrian Court at the commencement of the reign of our most gracious Sovereign would have been an impossibility, or rather it could not even have been contemplated. And now we have become familiar with most wonderful collections of the original works of the Assyrian artists, and in the Assyrian Court of the Crystal Palace we can study reproductions of those works, grouped with singular skill, and associated with an architectural structure which may be supposed to realise the actual edifices of Nineveh. The possession by this country of so many of the actual Assyrian works, and their concentration in the national museum, are facts which greatly enhance the value of this Assyrian Court, and impart a peculiarly impressive character to its teaching. The fidelity of the model is thus brought to the severest test while the work of the restorer is distinctly specified and rigidly defined. It will be found that this Court is worthy of much more attention than is usually bestowed upon it. Its very additions to what may be seen in the British museum constitute its special claims upon the student. Without doubt the student will require positive authority; such authority the casts from the slabs and sculptures possess in themselves, while their grouping and the accessories, which long and careful study has associated with them, lead on, with scarcely less sure accuracy, along the path of Art-written history.

The three epochs of Art are clearly developed in the recovered "Art-treasures" of Assyria. The first commences after the restoration of native Assyrian dynasties, and the departure of the Egyptian conquerors—that is, the period, according to the Greeks, of Ninus and his successors, in the fourteenth century before Christ, and which coincides with the first decline of the Egyptian power in Egypt itself, and also with the Israelitish Exodus. This period may be considered to close with the revolt of Arbaces, B.C. 821. The second era ranges to the destruction of Nineveh, about B.C. 600. And the third era, extending to the Macedonian conquest, comprehends the revived splendors of Babylon under Nebuchadnezzar, and the great works of Cyrus and Cambyses at Passargadæ, with the still more magnificent productions of Darius, and Xerxes, which rendered Persepolis so illustrious in antiquity, and have left it so dignified in its existing ruins. This third Assyrian period, after the usual manner, may be considered to extend itself beyond my definite limit, until Art ceased to live in Mesopotamia.

Egypt is the land of temples, temple-palaces, and tombs: in Assyria the palace has the pre-eminence, and the tomb has yet to be discovered; while the temple has hitherto been able to establish but a questionable title to distinct and certain recognition. The Assyrians most surely built and worked for the living; and whatsoever they transmitted for those who should live in after generations, through the agency of Art, had evidently a primary reference to the artists themselves and to their own age. This very self-love, however, in them for us has its advantages. They were scrupulously careful to delineate the living kings and princes and warriors, and living tributaries also and captives; they depicted events as they took place, and personages as they lived and acted; and thus we have Art-records which speak in a yet living language. The men have passed away, and with them has their self-love perished; but their memorial, with its voice of deep and solemn admonition, has been preserved, and thus they will not cease to occupy their own place in the great volume of human history.

Assyrian Art is no less national, no less characteristic, and no less consistent than Egyptian: accordingly it repeats the lesson for us, that these are qualities in Art which we shall do well to acquire. Distinguished by the peculiar feeling of the Assyrians themselves, Art in Assyria is essentially oriental: it also shows its different forms of expression in the most intimate association. The conditions under which remains of Assyrian Art have been preserved, have restricted those remains within a somewhat narrow range. Fire was the destroying agent which swept away so much, and yet in its very devastation formed the nucleus for the preserving accumulations which should shelter what had not been consumed. Hence works in stone and alabaster and marble have been preserved in profusion, while whatsoever had been formed of a perishable material has longed ceased to exist: and hence also, in consequence of the evident abundant use of wood in their construction by the Assyrians, large portions of their edifice have been destroyed with out leaving any clear vestiges of their original character. The existing remains prove that these remains did not constitute the entire edifices in their original forms; and the practice so fortunately prevalent in early times (I cannot apply the same epithet to its prevalence amongst ourselves) of imitating works designed and usually constructed in one material, in other materials, has supplied what otherwise would have been an evident but also hopeless loss in Assyrian Art. There still exist at Persepolis many remains executed in stone, which are evidently repetitions in that material of what the earlier Assyrian artists constructed of wood. Hence the restorations in the Assyrian Court have been obtained, and their judicious adjustment cannot fail to produce a suitable impression upon the Art student. Let such a student cherish that impression, but, at the same time, let him not regard restorations and actual reproductions as possessing the very same claims upon him. He will distinguish the one from the other as positive authorities, while he observes how much may be done by thoughtful care to supply what time and circumstances have rendered no longer directly accessible. It will be observed that the Assyrian Court is remarkable for the completeness of its illustration of the arts of Assyria, with the exception of the Art-manufacturers and the minor carvings and sculptures in ivory in which the Assyrians attained to such high excellence. There is, however, in this Court the imperfection so much to be lamented in these generally admirable structures—the absence, that is, of such an exact classification and arrangement as will clearly distinguish the great Art-eras, and assign to each its own peculiar teaching. This is *the* Assyrian Court, as it is usually seen and contemplated: it ought to have been, evidently and unmistakeably, a court exhibiting three successive periods in Assyrian Art. As before, again I may repeat that photographs may do much to effect what thus remains to be done; they may be made to demonstrate the eras, and also to show the character of those objects of Assyrian Art of which facsimiles cannot otherwise be obtained.

Without attempting to introduce here even a descriptive sketch of the works of Assyrian Art which have so recently become known to us, I may observe that the most ancient of the buildings at present disclosed from the mounds in the north-west palace at Nimroud, built by Asshur-akh-pal, one of the several Sardanapali, who is believed to have reigned about B.C. 900. The other principal discoveries are Khorsabad, to the north-east of Nineveh, the work of Shalmaneser or Sargon; Koyunjik, the splendid palace of Sennacherib, on the Tigris; and the palace of Esarhaddon, with several other groups of chambers, complete the series. To these the discoveries in Babylonia must be added; and with them the ruins of Persepolis must be closely associated. These most valuable historical remains lead us on to the still more interesting edifices of the Israelites in the great days of their glory. Not, indeed, that the Persepolitan remains form a directly connecting link with what Jerusalem once was, but that the transition from the platform and the rock sculptures of the Persians to the works of the wise king who reigned on the shores of the Mediterranean, is the most readily effected. As Persepolis is invaluable to us as an exponent and illustrator of Nineveh and Babylon, so do the three possess a special source of interest from the light which they combine to throw upon the arts of Israel. The temple and the royal house of Solomon, as we gather from Holy Writ and from the pages of Josephus, were evidently built and decorated in the styles of Assyria: there were the sculptured and painted wall-slabs, the cedar roof and pillars, the mystic figures, the elaborate yet peculiar enrichments which Nineveh has still, with the aid of Persepolis, preserved for us to contemplate. Whatever additional illustrations from Assyria and Babylonia may eventually be associated with the Assyrian Court as it now exists, it will be of the utmost importance that Persepolis should also be fully illustrated, and its value as a commentator upon the earlier arts of the Assyrians clearly made known.

From the Jour. of the Phot. Soc.

CAMERA FOR HOT CLIMATES.

Bridgnorth, May 23, 1857.

To the Editor of the Photographic Journal :

SIR,—A correspondent ("One from Ceylon's Isle") in the April number of the Photographic Journal, seems anxious to know the best material for a camera intended for hot climates. Well-seasoned *dry* deal (Baltic pine) will stand all variations of temperature, and for this reason some are of opinion that it is the best material for pendalums. The best form is unquestionably a sliding and folding camera, in the absence that is, of an *efficient* instrument, with an intermediate body of a flexible material. A journeyman carpenter or joiner will make as serviceable a camera, from a pattern, as a highly paid workman or manufacturer, and will not require to be paid for more than his time and materials. I have lately seen an instance of this. A friend of mine had a nine-guinea camera of the newest pattern, from one of the best (reputed) makers in London; it was so badly put together that it admitted light in five distinct places, and the board carrying the lens was made to travel in a very inconvenient manner,—by a right instead of a left-handed screw. In other respects it was pretty to look at. In justice to the maker I should add he has consented to change it, but he should not have sent out an imperfect instrument.

Mr. Sang is right in principle with regard to dark slides: they should be as thin as possible, and then we should require no dark box nor tent; and they must be home-made, unless one is a rich man. I wish Mr. Sang's explanation had been clearer. If he would send a description by post, to W. F. H. C., the Schools, Bridgnorth, he would greatly oblige

SCOTOGRAPH.

CYANATE OF AMMONIA—is formed by mixing dry ammonical gas with the vapors of hydrated cyanic acid which deposites a white, woolly, semi-crystalline mass. By heat, or exposure to the air, it is converted into urea.

From the Jour. of the Phot. Soc.

GLYCYRRHIZINE IN THE NEGATIVE EXCITING BATH.

BY T. F. HARDWICH, ESQ.

"The employment of glycyrrhizine in negative collodion, with the view of increasing the intensity of the image, has the disadvantage of lessening the sensitiveness and keeping qualites of the fluid. To obviate this, it is proposed in certain cases to add the material to the nitrate bath, by which a similar effect, although of a less decided character, is produced.

"The following experiment was made in order to ascertain how far an organic body dissolved in solution of nitrate of silver, could be expected to affect the properties of iodide of silver precipitated from that solution. An ordinary collodion nitrate bath, newly made and saturated with iodide of silver, was divided into two equal portions, to one of which glycyrrhizine was added in minute quantity; then, after a careful filtration, both portions were diluted largely with distilled water, until the iodide of silver had separated in a finely divided state. In twenty-four hours the milky deposit subsided, and was carefully washed to remove the nitrate of silver. The two portions of iodide were then collected, exposed to the light and compared. They differed evidently in appearance, the iodide from the pure solution of nitrate of silver being only slightly darkened, but that precipitated from the solution containing glycrrhizine having acquired a characteristic red tone.

"This experiment, taken in connexion with the fact mentioned in my last paper—that an iodized film remains nearly or quite clear in a bath of nitrate of silver, if a sufficient excess of glycyrrhizine be previously added to the collodion—seems to show that an affinity exists between this organic body and iodide of silver. In the first experiments made with glycyrrhizine this was not understood, and consequently the attempts to use it in the nitrate-bath were unsuccessful. However carefully the plates had been coated, they invariably exhibited, after development, transparent lines in the black parts of the negative, crossing each other at definite angles. On shaking up the bath with finely divided iodide of silver and filtering it, these markings dissappeared, and since the plan of saturating the bath with iodide *after the addition of the glycyrrhizine* has been adopted, they have not recurred.

"The amount of glycyrrhizine which will dissolve in a solution of nitrate of silver of the strength used in photography, is not greater that the $\frac{1}{30}$th of a grain to the ounce of liquid, and of this minute quantity the greater part separates on exposure to sunlight, forming a flocculent reddish precipitate as before stated. Little or no separation of the organic matter, however, appears to take place as long as the bath is kept in the dark.

"The photographic effect of the resin-sugar in the bath is not so decided as that produced by adding it to the collodion, but the former mode has the advantage in not interferring with the sensitiveness of the development of the middle tints. A change of color is the principal difference seen. The image loses the violet-blue tone which it usually possesses when formed on a pure collodion, acquiring in its place a shade of red or brown, which is more intense and far better for printing. Very soft and pleasing proofs are obtained in this way, although the negatives appear translucent on being held against the light. The process being very sensitive is well fitted for photographing animals, and for taking views nearly instantaneously. Negatives of the river Thames, with the shipping quite distinct and the smoke seen curling from the funnels of the steam-boats, have been obtained with a stereoscopic view-lens of $\frac{1}{4}$-inch diaphragm by an exposure of one second for each picture.

"In pursuing the subject, we describe the mode of preparing the bath with the glycyrrhizine, and afterwards add some remarks on the difficulties which may probable occur in carrying out the process.

"*Preparation of the Nitrate Bath.*—Take of

Fused nitrate of silver........	600 graines.
Iodide of cadmium............	3 grains.

Alcoholic solution of glycyrrhizine[*]	1 fluid drachm.
Alcohol	3 fluid drachms.
Glacial acetic acid	10 minims.
Water	20 fluid ounces.

"Dissolve the nitrate of silver in three ounces of the water, the iodide of cadmium in half an ounce: mix and stir until the precipitate redissolves. Dilute with water to 10 ounces; add the other ingredients in the formula, make up the bulk to 20 ounces, and filter.

"In introducing glycyrrhizine into a bath already made, proceed as follows:—drop the required quantity of the alcoholic solution into the bath, then dissolve a drachm of nitrate of silver in three drachms of water, and one or two grains of iodide of cadmium in one drachm of water: mix, stir until clear, add to the bath, and filter. In this way the solution will be saturated with iodide of silver, and the peculiar markings before referred to will not be seen.

"*Remarks.*—The glycyrrhizine has been used in three different proportions, viz., one minim, two minims, and three minims to the ounce of nitrate solution. The first appeared to be sufficient for portraits, but not for views, the two latter giving the greatest intensity.

"The quantity of acetic acid advised in the formula is greater than usual. In very hot weather, the thermometer standing at 90°, it was found difficult to preserve the transparent parts of the negative clear, and since the glycyrrhizine appears to add somewhat to the sensitiveness, the retarding effect of the acid in the bath is less seen.

"As the condition of the collodion and also of the developer affects, to a great extent, the action of the bath, it may be well to mention the following particulars. The collodion, if colorless and iodized with iodide of cadmium, must not be alkaline to test-paper. The film should be tolerably creamy; a pale blue film did not appear to give any perceptible increase of intensity when dipped in the bath containing the organic matter. Collodion iodized with iodide of potassium or ammonium, will succeed with a nitrate bath containing glycyrrhizine; but supposing both preparations to be newly mixed, the cadmium salt will usually give the greatest intensity in the high lights.

"The state of the developing solution is a point of importance. The smaller the quantity of the acetic acid the greater the intensity, as a rule. Ten to fifteen minims of the ordinary glacial acid will be sufficient, with a little alcohol, if necessary, to make the solution flow. I have traced failures more than once to the state of the developing solution; the pyrogallic acid or the acetic acid being in fault, and the reducing power of the liquid too small to give a dense brown negative.

"The tendency to stains and markings on the film is probably increased by the presence of glycyrrhizine in the bath. The whole process is, in fact, so sensitive, that it requires unusual care in working. If the plates are not moved up and down whilst in the bath, there will be vertical lines in the direction of the dip; and unless proper care be exercised in draining, and wiping the back of the glass, marks like curtains will be seen at the most depending part of the film. These stains can be produced almost at pleasure, by tilting the plate before applying the developer. A wave of nitrate then flows back, and causes marks which are more transparent than the other portions of the image. Also particles of dust in the collodion, or from the slide, which might perhaps escape notice in using a newly mixed and slightly acid bath, will be likely to produce a spot when the bath contains organic matter, a central nucleus being seen, surrounded by a ring of reduced silver. The same thing often happens when the bath contains much acetate of silver, or when, by continued use of old collodion, organic products of decomposition have accumulated in it. Insoluble particles floating in the developing solution are also a source of spots; they should be removed by filtering through blotting-paper.

"I have tried the effect of glycyrrhizine in the exciting bath in the oxymel preservative process, and also the waxed-paper process. In both cases the development was rapid, and the skies intense. After four days' keeping, however the thermometer standing at 75° to 85° Fahr., the oxymel plates prepared in this way solarised very strongly, the skies being steel-blue by reflected light and pale red by transmitted light.

"With certain kinds of collodion, already sufficiently intense, the presence of a body like glycyrrhizine in the bath is a disadvantage, and especially so in portraiture. The image comes out of a ruby-red tint, and the negative will not print properly. This state of things may be remedied to a great extent by shading off the light as much as possible, and using a weak developer, with a large proportion of acetic acid; but the best plan will be to employ two baths, one prepared with and the other without glycyrrhizine. When the collodion is newly mixed and feeble, dip the plate in the former; but if by keeping, or by an organic addition, it has acquired greater intensity, the latter will give the most perfect picture.

"In concluding these papers on glycyrrhizine, it must be confessed that absolute uniformity in the color and mode of development of the collodion image cannot be obtained in the present state of our knowledge. There are atmospheric conditions, imperfectly understood, which effect the result. In the late sultry weather I have found it sometimes difficult, even with the aid of glycyrrhizine in the bath, to obtain a dense negative, and have been compelled either to push the development very much with nitrate of silver, or to add the organic substance to the collodion in such proportion as, on a favorable day in the early spring months, would have produced excessive intensity and loss of half tone."

From the Jour. of the Phot. Soc.

ON STEREOSCOPIC PHOTOGRAPHY.

BY JAMES ROSS, ESQ.

Read before the Photographic Society of Scotland, June 9, 1857.

There is no branch of our art upon which so many conflicting theories exist as that of stereoscopic photography, and generally upon the distance apart at which the two lenses should be placed when taking the negatives. Our President, Sir David Brewster, says that, for all and every stereoscopic picture, be it a near view or be it a distant view, the lenses should be no further apart than are the human eyes. Some insist that landscapes have not the relief of nature unless the lenses are kept apart in some degree proportional to the distance of the view from the point at which it is taken; whilst others again say that the separation of the lenses is quite immaterial, and that they may be kept close together, or removed six feet apart,—the effect being still the same. If this opinion be correct, then both the other modes are right as well, and nobody is wrong; but unfortunately the six-feet mode will not do, as anybody may prove by taking a picture of a near object, say a building, and the distortion will be such that the architect would never recognise his own design; or better still, by taking a portrait of a man smoking, and you will find that the pipe appears to protrude fully as many feet as it should inches, while the man's nose appears not very far behind it in the race forward.

There is one thing that may be said in favor of Sir David's theory,—it has not been hastily formed; the first time that ever he honored us with a visit was to favor us with an order for a stereoscopic picture. He told us to keep the cameras very considerably apart;—this was during his early experiments and, I believe, was the first order a professional man received for a stereoscopic picture.

I will now show you a view of Edinburgh, taking according to Sir David's theory; to me it is stereoscopic in a high degree, and has this great additional recommendation, that walking figures can be taken, as you will see hundreds there in Prince's Street; you also find the shadow of a large cloud resting across Prince's Street—which I never saw in a photographic picture before.

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[*] The solution contains five grains of pure glycyrrhizine dissolved in one ounce of alcohol.

Here again is the same view taken with the lenses several feet apart, and certainly it is more startling at first sight, but although it was taken as quick as the other, yet the two halves not being taken at the identical same movement, neither the moving figures nor the clouds unite in the stereoscope. It may be said that the two might be taken at the same time although far separate, but we have never found this practicable; and I may here mention that Mr. Malone seems to have given up the whole argument in favor of this mode, when in the last Number of the Journal he says it is not according to nature.

So much for the Negatives; I have now a few explanations to give about the copying:—There are several modes of printing the stereoscopic pictures upon glass: the first is, preparing the albumen with common salt and silver, the same as paper, and leaving it to print in the sun for some three or four hours; the result is very beautiful, no development being required.

Another mode, which is generally followed, is to prepare the plate with iodized albumen, expose in the printing frame for a second or two, and develope with gallic acid the same as a negative. A third plan is to prepare the plate with negative collodion and place a strip of paper around the edges, to prevent the wet silver spoiling the original; expose for a fraction of a second, and develope with pyrogallic acid; if the light be made to fall in parallel rays, the impression will be perfectly sharp. We have likewise printed with Taupenot's process, but have abandoned it on account of the uncertainty as to the beauty of the copies and the certainty of the complete destruction of the negatives. Hundreds of copies may be printed upon such a pliable surface as paper; but you cannot press too hard surfaces such as albuminized glasses, without injury to both, and drops of silver from the wet collodion will get upon your negatives, take what care you may; we therefore copy them as we copy other pictures,—with the camera, of course with the light transmitted through them, and all we have to do is to turn the back of the picture towards the lens; it makes no difference whatever as to the sharpness, and is the whole secret of the French patent process; the copies may be made upon albumen or wet collodion, without the slightest risk of injury to the negatives. Both halves of the picture may be copied with one lens at the same moment, or one at a time with a small lens made to shift. And not the least of the advantages of this system is the rapidity with which hundreds of copies can be made*.

After observations by the chairman, Mr. Moffatt, Mr. Fite, and Mr. Richie,—

Professor George Wilson—A great number of people think that the test of a good stereoscopic view is for it to stand out; but if it is that solidity which is seen in nature, then the 2½ or 3-inch is probably the best distance. Some see a stereoscopic effect with a single eye: you must not lay down a dogmatic rule for the distance between the lenses, though, if portrayed, you must see them with most pleasure in the same way.—With regard to the remark which Mr. James Ross has just made, regarding the necessity for copyright in photography, I may here add that, on the ground of utility, the Industrial Museum will employ photographers to take views of blast-furnaces and such things as will be of interest. Now if this were the case, we could exchange these all over Europe, and be enabled to illustrate our lectures with the most correct views that are to be had; we could show that there would be a great gain to the entire country in this protection of stereoscopic prints. Whilst we are considering the subject of the stereoscope, I wish to draw your attention to the subject of the combination of complimentary colors to produce white. I merely refer to it here in the hope that some of the photographers present will take take up the matter. It has been stated, that if you had one half of an object red, and the other green, they should unite to form white, and appear neither red nor green. I could never see this, but still I do not doubt it. It is a very intetesting fact, that blue and yellow may be united without producing green. This shows that we are very far from perfect in our theories regarding color.

Mr. W. Kinlay.—In one stereoscopic view which I got, there is a brick-colored green, in the other it is pink; the result of this was a stone color; this stone-color was nearly white, and it would have been so but for the impurities of the colors: yellow and pink produce grey.

Mr. Walker.—There is such a thing as stereoscopic blindness, as well as color-blindness, and I have frequently met with people blind of one eye who yet could see stereoscopically with the other.

From the London Art-Journal.

LITHOGRAPHY, AND OTHER NOVELTIES IN PRINTING.

Lithographic Printing by Steam—Chromo-Lithoglyphy—Natural Printing, or Phytography—Block-Printing.

BY ROBERT HUNT.

We presume lithography is now so familiar to our readers, that but little necessity exists for any detailed description of the processes and the principles involved. Being desirous, however, of communicating the recent advances which have been made in color-printing from stone, we feel that it is necessary to furnish some little information of the general manipulation; that each particular stage in advance may be well understood and the difficulties to be overcome clearly perceived. The interesting character of the inventor of lithographic printing, and the opposition which he met with in his attempts to introduce the novelty of printing from stone, presents so instructive a lesson, that a short space may be devoted to the consideration.

Alois Senefelder was a resident in Munich, his father being connected with the Royal Theatre in that City, and Alois himself, after his father's death, was employed as a supernumerary actor in the same establishment, which he left to enter on the no less uncertain life of an author. Senefelder has told us his story, but we do not learn from it the reasons which led him to think of printing from stone. We are told by some writers on the subject, that it was pure accident, but none of the incidents in Senefelder's own narrative lead to such a supposition; on the contrary, they show the most pains-taking research, and gradual advance, step by step, as the result of well devised experiments. The young author was anxious to print a work of his own, and not being able to incur the cost of a printing-press, he obtained some blocks of Kellhein stone and endeavored to *etch* upon these.

"I had just succeeded," he says, "in my little laboratory in polishing a stone plate, which I had intended to cover with an etching-ground, in order to continue my exercise in writing backwards, when, my mother entered the room, and desired me to write her a bill for the washerwoman who was waiting for the linen. I happened not to have the smallest slip of paper at hand, as my little stock of paper had been entirely exhausted by taking proof impressions from the stones, nor was there even a drop of ink in the inkstand. As the matter would not admit of delay, and we had nobody in the house to send for a supply of the deficient materials, I resolved to write the list with my ink, prepared with wax, soap, lamp-black, on the stone which I had just polished, and from which I could copy it at leisure. Sometime after this, I was going to wipe this writing from the stone, when the idea all at once struck me to try what would be the effect of such a writing with my prepared ink, if I were to bite in the stone with aqua-fortis: and whether, perhaps, it might not be possible to apply printing ink to it, in the same way as to wood-engravings, and to take the impressions from it." The experiment was successful, but Senefelder was too poor to pursue his discovery, and for the purpose of raising money he determined to enlist as a private soldier in the artillery. He continues, "I was quickly resolved, and on the third day after forming my resolution, I went to Ingolstadt with a party of recruits to join my regiment. It was not without some feelings of mortification and humbled pride that I entered the city, in which I had formerly led the independent life of a student, but the consciousness of my own dignity, and enthusiasm for my new invention, greatly contributed to restore my spirits. I slept in the barracks, where I was not a little disgusted by the prevailing filth, and the vulgar jests of a corporal. The next morning I was to enlist, but to my great disappointment the commander of the regiment discovered that I was not a native of Bavaria; and, therefore, according to a recent order of the elector, could not serve in the army without obtaining a special license. Thus my last hope failed me, and I left Ingolstadt in a state of mind bordering on despair. As I passed the great bridge over the Danube, and looked at the majestic river in which I had been twice nearly drowned while bathing, I could not suppress the wish that I had not been then saved, as misfortune seem to persecute me with the utmost rigor, and to deny me even the least prospect of gaining an honest subsistence in the military career." Fortune however was disposed to smile upon the inventor, and on his return to Munich, a musician in the Elector's band, Mr. Gleissner, employed Senefelder to prepare a series of lithographic stones with the music and words of some songs which he desired to publish. These were the first specimens which the world saw of Lithography; and as a commercial transaction it was moderately profitable. Some other works having been executed in the same manner, Senefelder communicated his process to the Electorial Academy of Sciences, which treated the invention coolly, and merely rewarded the inventor by the gift of twelve florins. Senefelder, however, assisted by Mr. Gleissner, was enabled to execute several important works, and he struggled on through many difficulties until the commencement of the present century.

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* In mounting them, the face of the picture and the obscure side of the other glass are placed together, and this obviates all the trouble of dimming the picture with wax or other substances,

In 1800 a patent for printing from stone was obtained in this country, and of course, an accurate description of the process lodged in the specification at the patent office. The process was introduced by Mr. Philip André under the name of Polyautography. From this period the progress of Lithography has been one of steady advance. For a period the artists and engravers, alarmed at the idea of the production of fac-similies of their works with so much ease, were not at all disposed to favor printing from stone. These prejudices were however gradually overcome until, at length, the artists discovered many advantages in the process, and it became of general use throughout Europe

The process of the art of Lithography depends upon the following principles:—

> The adhesion of an encaustic composition to a peculiar kind of limestone.
>
> The lines being drawn on the stone with this fat, the power acquired by these parts of receiving printing ink, which is a compound of carbon and oil.
>
> The power which we have of preventing the adhesion of the ink to the other parts of the stone by the interposition of a film of water.
>
> And lastly, on our being able to remove the ink from the greased portions by simply pressing an absorbent paper into close contact.

Lithographic stones are produced, in several parts of Europe, but the principal supply of the best stones is from the quarry of Solenhofen, a short distance from Munich; and the quarries of limestone which occur in the country of Pappenheim, on the banks of the Danube. In England, stones of a similar character have been found at Corston, near Bath; and at Stoney-Stratford; but these are generally considered as inferior to those from Bavaria. Some attempts have been made to produce artificial stones for the purposes of the Lithographic artist. The most successful have been formed by combining lime and very fine sand with caseine, or the cheesy portion of milk. When dry, this becomes as hard as marble, and is moderately absorbent; but in all respects very inferior to the stones obtained from Munich.

Although these calcaro-argillaceous stones have much the character of the liasic limestones, and in their natural conditions present the like conditions of occurring in *layers*, as the lias does, they do not belong to the same geological epoch, being of much more recent formation.

These stones are prepared in different ways, according to the work for which they are intended. When the stone is to be used for writings, or ink drawings, it must be polished by means of finely powdered pumice stone, and pumice stone in the lump, until the surface reflects objects to the degree in which they are reflected by polished marble.

For printing chalk drawings, this polish is not required, but a perfectly smooth and uniform surface. This is produced by taking two stones of the required sizes, fixing one securely on a table, and dusting its surface with very finely powdered quartz of silicious sand, and sprinkling water upon it:—by some an addition of starch is made to the sand. The other stone is now placed on this, and by circular sweeps in various directions, so that the lines shall regularly cross each other at right angles, a uniform surface is eventually obtained. The greatest care is necessary in cleaning the stone of the sand, by means of a brush and abundance of water.

Lithographic crayons for drawing upon stone require the most careful preparation. They must be composed of ingredients which will adhere to the stone; the unctuous preparation must not diffuse itself on either side of the line drawn, howsoever fine that line may be. The crayons must be hard enough to admit of finely pointing, without the liability of breaking, so that the artist may have the power of producing with certainty the most delicate lines.

The following receipt, by Bernard and Delarue, is said to be of superior excellence.

Finest White Wax	4 ounces.
Soap (finest White Tallow)	2 „
Pure Russian Tallow	2 „
Gum Lac	2 „
Finest Lamp Black—a sufficient quantity to give a dark tint.	

The wax being melted, the lac broken small is added by degrees, and stirred until uniformly incorporated; the soap is then added: next the tallow, and lastly the lamp-black It is not unusual to set fire to the melted mass, which process certainly prevents the escape of offensive exhalations, and, as some Lithographic artists say, impoves the composition. This is not understood, and for the latter purpose it would appear far more reasonable to seek for improvement by altering the proportions of the materials by *weight* instead of *fire*, for the combustion acts more energetically upon one of the materials than upon another. Lasteyrie's crayon composition is much more simple in its character, and made on a more improved method. Six parts of white soap, and the same quantity of white wax are melted carefully in a vessel closed up, and the lamp black gradually dusted in, carefully stirring the mixture. Either of these compositions is poured into brass moulds while hot, and when cool they should afford brittle slices.

Lithographic ink is, in principle, the same as the crayon composition, the proportions only being varied. Lasterie's is made of

Dried Tallow Soap	30 ounces.
Mastic fine	30 „
Carbonate of Soda	30 „
Shell Lac	150 „
Lamp black	12 „

When the ink is to be used, it is to be rubbed down with water in the same way as with China ink, till the required shade is produced. The temperature of the room should be from 85° to 90° Fahr., and the palette upon which it is rubbed should be warmed. As this readily dries, no more should be mixed than is required for present use.

With the stone prepared, and the crayons or ink, the artist commences his work; the ink is used in steel pens manufactured for the purpose. This is, of course, an operation of much delicacy where the production is of an artistic character. For a long period it was found almost impossible to repair an injury or correct a fault. Mr. Coindet, in 1827, however, succeeded in overcoming this difficulty, and now the artist has the power of retouching his drawings, and even, to a certain extent, of varying the composition and altering the effect.

To place a chalk drawing on the stone, the outline may be traced upon it with a black lead pencil, or a stick of red chalk. A method is sometimes adopted of placing a little rice-paper, one surface of which has been rubbed with red lead, upon the stone, and then with a steel point carefully tracing the outline. The red lines left upon the stone are a sufficient guide to the artist, and he proceeds to fill in with his crayons precisely as if he was drawing upon paper.

For writing, the ink above mentioned is employed, but for either process the utmost cleanliness is required, to keep the stones free of spots. If it is touched by the draughtman's hand, the organic moisture produces a spot which will take ink from the inking roller; even breathing on the plate produces an injurious effect.

To write on the stone so that the printed impression shall be correct, it is of course necessary that the writing should be inverted from right to left; this is a tedious process, and difficult to acquire. To overcome this, autographic paper is used, the writing or drawing is made on this in the usual manner, and then transferred to the stone.

Autographic paper is prepared by laying on successively three coats of sheep-foot jelly, a layer of white starch, and a layer of gamboge. When the paper is dry, it is passed through the press for the purpose of receiving a polished surface. The ink used upon this paper consists of white wax, soap, shell-lac, and lamp-black.

To transfer the writing or drawing to the stone, it is necessary to moisten the transfer-paper, and then placing it on the stone and subjecting it to a little pressure, the ink is infallibly removed from the gamboge. Indeed, by moistening, the starch separates from the gelatine, and the paper is restored to its original condition.

The drawing or writing being, by any of these methods, made upon the stone, it is placed obliquely over a tank, and a weak solution of nitric acid poured upon it. The stone is then reverted, and the acid poured again over it. The strength of acid usually employed is about one part of strong nitric acid to one hundred parts of water. This—the etching process as it is called—requires great care; the acid acts on the limestone, and there is some effervescence; it requires therefore considerable practical skill to determine the amount of abrasion which should be allowed to take place. If continued too long the fine lines are destroyed, and the drawing otherwise injured. The drawing is then well inked with the inking roller, and a layer of gum arabic floated over the stone, the solution being about the consistence of a syrup. After these various stages have been completed, the stone is fit for printing from. The stone is kept just wet enough to prevent the ink, which is applied by rollers, as in the ordinary processes of printing, from going on any part of it but the drawing, and a very little gum is allowed to remain on the stone during the whole process. It will now be seen that the object has been to produce a drawing or writing by the formation of greased lines. Grease and water, or acid, are repellent of each other, and, therefore, since we employ an ink which contains unctuous matter, it will only be received on those lines which are already greased, the moistened parts of the stone rejecting it. The paper prepared to receive the impression from the lithographic stone is now placed upon it, and it is submitted to a peculiar scraping pressure, which is found to produce a far better effect than a direct and equal action over every part at the same time.

Without drawing it is difficult to describe the construction of the lithographic printing press, but it will be sufficiently indicated by stating, that the scraper is a wedge formed plate of steel, fixed with the bottom of the platten with its edge downwards, and capable of nice adjustment by screws, so that it may lie parallel with the face of the stone lying on the table of the press. The table on which the stone with the paper for receiving the impression is placed, and the tympan, as in the ordinary press, brought down, is by means of a handle and rollers brought under the scraper, and the pressure is thus gradually continued from one end of the plate to the other; when it has passed through, the scraper is lifted, the moving table brought back to its original place, and the impression removed.

Various attempts have been made from time to time, to employ steam presses for the purpose of expediting the process of lithographic printing, but without any great degree of success. Messrs. Napier and Sons, some years since, devised a very ingenious arrangement for securing the scraper motion in a machine urged by steam power. We have lately had an opportunity of examining a new steam lithographic printing-press, or rather self-acting lithographic machine, invented at Vienna, and which has been used for some time at the lithographic printing establishment of Messrs. Maclure, Macdonald and Macgregor, who are the pattentees for the United Kingdom. In this machine the lithographic stone is moistened, inked, and printed, by a series of adjustments which exhibit a very high order of mechanical ingenuity.

The patent self-acting lithographic machines appear to possess advantages over every other description of machine hitherto invented for this art, in consequence of their speed. It is stated that they outstrip the best hand printer at the rate of thirty to one, at the very lowest calculation, and that this is done without any sacrifice of quality. The higher kinds of drawing must still be printed by hand, but this new process is perfectly suitable for all purposes of business advertisements, circulars, maps and plans, transfers from copper and steel plates, for the multiplication of impressions of newspapers, as an agent for the production of a daily or illustrated journal.

The stone traverses through beneath a damping roller of most ingenious construction, then comes in contact with the inking rollers, two in number, is caught by the pressure, making the impression complete; it then delivers the perfected work, printing, as we are told by the patentees, large folio at the rate of 900 per hour, or 8000 per day.

Chromo-Lithography, or printing in colors, has for some years been attracting considerable attention, and has lately made surprising advances in this country. It may be remembered by many of our readers that there were in the Great Exhibition some very beautiful specimens of printing from stone in colors, furnished from the Imperial printing offices at Vienna. These productions were by Hartinger, and were accompanied by the several impressions in single color to show the manner in which the various tints were combined. In the Fine Art Court, Class 40, there were also, many examples by our English Lithographers, the finest examples being those then produced by Messrs. Day and Son. Their very striking work, "The Destruction of Jerusalem by Titus," from Roberts' picture, remarkable alike for size and correctness of imitation, and some other works by Louis Haghe, Lane, &c., advanced this process to a pitch of excellence. Since that time the same firm has produced a copy of the "Blue Lights," by Turner, which, when placed beside the original, wanted but one thing to the production of a perfect fac-simile. Atmospheric effect required the application of a semi-transparent glaze, which can scarcely be produced by printing from stone; but this might we think have been obtained by a subsequent application of color by an artistic hand. In all chromo-lithographic works, as many stones must be employed as there are colors upon the picture. The preparation of them demands that great care be taken in the respective drawings, so that each part combines perfectly with those corresponding with it. The registration, as it is called, of each must be carefully maintained throughout every stage of the operation; consequently the process is essentially a slow one, although the results produced are of exceeding beauty. About one hundred impressions of the large plates in Roberts' splendid work on Egypt can be produced in a day. This, however, must be regarded as fine specimens of tinting in lithography rather than examples of chromo-lithography.

It will be understood that the only difference in the process of color printing, and the ordinary printing in black ink, is in adding the required color to the ink instead of lamp-black.

Amongst other examples of the perfection to which this process may be carried, we must refer to the reproduction of the head of Shakspeare, in chromo-lithography, by Mr. Vincent Brooks, of King street, Covent Garden. It is difficult at a distance to determine whether we are looking at the old oil painting, or a copy of it merely, every crack upon the varnish being preserved in all its truthfulness. This lithographer has also executed some flowers—which, for delicacy of coloring and exactness of detail, are amongst the finest examples we have seen. Mr Brooks' most recent work from the picture by Ansdale shows still more perfectly the capabilities of the Art, and leads us to believe that in a few years we may expect to see chromo-lithography taking the place occupied by fine line engravings. The reproduction of some of Mr. Hunt's works—in particular, a "Fruit-piece," and the "Bird's Nest," by Messrs. Hanhart, are equally beautiful realizations or reproductions of the artist's works.

Woodcuts can be well imitated in lithography by covering the stone with ink, taking out the light parts with a steel point, and putting in the fine lines with a camel-hair pencil. Copperplate prints may also be imitated by an etching process, but, by taking an impression from a copperplate upon transfer-paper, and then immediately communicating the impression to the stone, *fac-similes* are obtained.

Amongst the latest advances in lithography is its combination with photography. The photographic impression is obtained by covering the stone with a sensitive resin. All the parts most acted upon by the sun's rays are rendered soluble and easily dissolved off. These parts being etched, as we have already described, the lines already covered with the resin are in a conditian for receiving the unctuous ink, and for printing from. We have seen some exceedingly good results produced in this way, and we doubt not but in a few years the combination of these two Arts will place us in possessson of copies from Nature in all that beauty and correctness of detail which belongs to the process of sun-painting, and which can be so successfully multiplied by stone printings.

Natural Printing, or Phytoglyphy.—It appears that this natural printing, (*Naturselbstdruck*) as it is termed, is the invention of the superintendent of the Galvanoplastic department of the Imperial printing-office at Vienna, named Andrew Worrung, but in conjunction with whom it has been patented in Austria by Councillor Auer, the director of the establishment, who has in the pamphlet which he has published, printed at his own office in different languages, and circulated over Europe, claimed for himself a far larger share in this interesting process than he merits. The first experiments were made upon patterns of laces; the lace was laid upon and secured to a plate of polished copper, and then a plate of soft surfaced lead being placed upon it, the whole was passed through the rollers of a copper-plate press. By this method a perfect impression of the textile fabric was obtained; and upon inking the plain surface of this indented lead plate impressions could be printed off at the surface-printing press, presenting the design in white upon a dark ground; or by another method, namely by taking an electro cast of the lead plate and producing impressions in black upon a white ground, at the ordinary copperplate press.

It is not improbable that the idea may have been borrowed from the practice of the workers in German-silver, who ornament that metal by placing pieces of lace between two plates of it, and passing them through rollers. The *leaves* of *plants, branches, roots, sea-weeds, feathers*, or any substance that is capable of being impressed into lead (as the patentees have described it) are made to impress their figures upon lead-plates in a similar manner. The thickest parts of the plants, the roots and stem, make a deep impression in the lead, and all the other parts produce indentations equal to their thicknesses. It will be evident, therefore, that the thin leaves of flowers and leaves are the most superficial parts of the impression; and, in all the printed specimens we have seen from Vienna, as well as those produced by Messrs. Bradbury and Evans, are exceedingly transparent, but all the venations of the leaves are drawn with the greatest delicacy and fidelity to nature.

To print impressions from lead would obviously be impracticable; therefore, a copy of the lead-plate is obtained by the electrotype process in copper, and from these any number of equally perfect impressions can be obtained. The Austrian patent includes every process by which copies can be obtained from natural objects; hence, such as are bulbous, and which could not be squeezed, are copied by means of gutta-percha moulds.

Agates are represented on paper with very great fidelity. The several layers constituting the agate itself are not equally dense; they are therefore acted on by fluoric or other acids; some lines are thus etched to a greater or less depth, and others left untouched. A proof might be taken at once from the stone; but in printing the Vienna specimens, the face of the agate after biting in with acid has been copied by means of the electrotype process. Several impressions are arranged upon one sheet of the gutta-percha; consequently, the resulting electro-plate may include any number of copies of the etched agates. Fossil remains that will not, from their brittle nature, admit of being pressed, are copied by means precisely similar in result, though not in manipulation—instead of applying gutta-percha by pressure, it is applied with care in a soft soluble state, forming a mould, and when dry removed and copied by means of the electrotype process.

The extensive capabilities of this new art are already shown in the very perfect manner in which we have seen the wing of a bat copied by it; the resulting impression on paper showing in the most delicate manner the peculiar structure of the membranaceous part, and preserving all the firmness of the bony frame-work. The copies of mosses produced in the Vienna establishment are so singularly true to nature, that it is difficult to believe that the representations on paper are not the plants themselves, mounted with great care, and we shall look forward with some interest for the progress of an art which in its infancy affords so many proofs of the immense value it is likely to afford towards revivifying nature with such truthfulness.

This *Natural Printing*, as Auer has called it, exhibits some remarkable facilities for the reproduction of natural images. The processes are simple, and when by experience a few of the existing imperfections are overcome, we may look to it as a probable means of affording illustrations for many works on natural history.

The plates of flowers are printed in colors, and we learn that it is not necessary, as in chromo-lithography, to employ a separate plate for every color; the colors are applied to the plate, and all the colors obtained on the paper, by one application of the press.

Messrs. Bradbury and Evans have afforded us the opportunity of seeing the process in work, and from the explanations given by these gentlemen, it is very evident that, simple as the process may appear from reading of it, there are a great many troublesome details that only experience can explain

The English patent embraces, in addition to phytoglyphy, mineralography, and the other processes of copying from nature, each of which, strictly speaking, is nothing more than phytoglyphy, the difference being only in the manipulation—not in the result. Towards spring the public may expect to have an opportunity of expressing their opinion upon the subject, which is one of exceeding interest. We have submitted some of the specimens to a first-class botanist, and he assures us the value of the process—as showing the venations of the leaves and the most delicate lines of structure—must ultimately be great. A series of leaves thus printed would furnish the geologist with the means of identifying the fossil plants; and the reproduction of the images of fossil animals, as they lie embedded it the rock, cannot but be of great assistance to the palæontological student. To the designer this process offers many advantages, as procuring for him truthful representations of nature, and disclosing peculiar lines of structure—available for the purpose of ornament, which could not be obtained in any other way.

The impulse which has been given to industrial instruction, particularly in the National and British schools, has led to the production of scientific diagrams, at an exceedingly cheap rate, by the means of block-printing, and we have lately seen some specimens of botanical diagrams, produced by Mr. Griffin, of

Finsbury, by the process of cylinder-printing, remarkable for their correctness in drawing and in color. A large sheet containing as many as twelve or fourteen colors can thus be produced for about sixpence. The educational means afforded us are being increased with remarkable rapidity. We must hope that the result will be the gradual introduction of more correct knowledge than that at present possessed by the masses, and the diffusion of a higher order of taste. By increasing the rapidity of production, by applying steam to the lithographic press, by the process of chromo-lithography which appears equal to the production of works of the highest order in Art, by the introduction of this new means of copying nature with ease and certainty, may we not hope we are advancing the state of civilization? This advance, too, is not in the direction of those luxurious habits, which by enervating soon produce a retrograde movement, but in that of stimulating the mind to the study of the true and beautiful in art and nature, thus giving strength to the mind, and improving, as a consequence, the moral condition of the race.

From the Jour. of the Phot. Soc.

PROCESS FOR A HOT CLIMATE.

Sydney, New South Wales, April 7, 1857.

To the Editor of the Photographic Journal.

Sir,—On receipt of the Number of the Journal for December last (just come to hand), I was much surprised on reading a paragraph in an article from M. Lyte Esq., to find that he denies the practicability of keeping for a lengthened period, plates prepared by Mr. Shadbolt's honey process. Now, believing, as I do, that this is the best process for the conservation of the sensitive collodion film, ever yet placed before photographers, I am anxious to give you the result of one or two experiments made in this exceedingly warm climate. On the 9th January 1855, I prepared two plates without the slightest deviation from the process as *first* written by Mr. Shadbolt: during the following two days (days ever to be remembered by Australian colonists) the heat was so excessive that I could not venture out with my plates, the thermometer ranging between 110°F., and 112°F., in the shade, with a hot wind more to be compared to a blast from a furnace than anything else. I may mention that so intense was the heat, that some fifteen or twenty persons in and about Sydney died from its effects. On the third day (after having kept these plates nearly three days *unwashed*, and coated with the honey after a simple draining from the nitrate bath), I exposed and developed them, producing two perfect negatfves, notwithstanding the excessive heat. Yesterday I developed successfully three plates prepared by the same process *eleven* days previously, and moreover without steaming, but simply wasking off the honey, by immersion for twenty minutes in a bath of rain water, the average temperature during the eleven days being about 80°F. I have frequently kept plates a week, exposed them, and kept them another week before developing, and always with success; indeed I may say that since I have worked by this process I have not had a failure. Surely then (and I say it advisedly) Mr. Lyte could not have given the process a fair trial before writing the paragraph alluded to; and I must say that I should not have the slightest hesitation in keeping a plate so prepared, even in this climate, unwashed, a couple of months; besides which, I would undertake to wash the honey off without steaming, and develope a perfectly clean negative.

I would earnestly recommend to the notice of those following this process the judicious remarks of Dr. Hill Norris (also in the December Number of the Journal) with reference to the mechanical structure of the film best adapted to the gelatine process, for I know by experience that such remarks are quite applicable to the honey process, and I imagine that Mr. Shadbolt, alluding (in his reply to "Middle Tint") to a repellent Collodion, had the same impression.

If not trespassing too much on your valuable space, I would allude to a singular circumstance which requires investigation at abler hands. I have frequently noticed, even when working with anhydrous collodion, a reticulation of the film after development, both in new and preserved plates, when using the ordinary developer; but I have never met with such a result when citric acid was substituted for acetic. To make sure of this point I have tried many experiments, and although with some collodions I could, when using pyrogallic and acetic acids, get it (*i. e.* the reticulation to perfection, I could not do so with citric acid; on the contrary, the film was in every case homogeneous and perfect. I am aware that citric acid has been recommended before, but I do not think any mention has been made of the above or a similar result. A very important question arises. If acetic acid can be proved to have an injurious effect on the film, would not a solution of citric acid mixed with the honey in the oxymel process, be better than acetic acid?

Edwin Haviland.

From the Liverpool Photographic Journal.

THE CHEMISTRY OF LIGHT IN 1817.

Dr. Thos. Thomson, in the first of the four volumes of his "System of Chemistry," distinguishes the 14th sectional paragraph of the first chapter by the following marginal title: "Light produces changes on bodies;" and goes on to say that the absorption of light by bodies produces very sensible changes in them. Plants, for instance, may be made to vegetate tolerably well in the dark; but in that case their color is always white, they have scarcely any taste, and contain but a very small proportion of combustible matter. In a very short time, however, after their exposure to light, their color becomes green, their taste is rendered much more intense and the quantity of combustible matter is considerably increased. These changes are very obvious, and they depend incontestibly upon the agency of light. Another very remarkable instance of the agency of light is the reduction of the metallic oxides. The red oxide of mercury and of lead become much lighter when exposed to the sun; and the white salts of silver, in the same situation, soon become black, and the oxide is reduced. The oxide of gold may be reduced in the same manner. Light, then, has the property of separating oxygen from several of the oxides. Scheele, who first attended accurately to these facts, observed also, that the violet ray reduced the oxide of silver sooner than any of the other rays; and Senebier has ascertained that the same ray has the greatest effect in producing the green color of plants. Berthollet observed, that during the reduction of the oxides, a quantity of oxygen gas makes its escape.*

It was supposed till lately that those reductions of metallic oxides were produced by the colorific rays of light, but Messrs. Wollaston, Ritter, and Bockmann have ascertained that chloride of silver is blackened most rapidly when it is placed beyond the violet ray and entirely out of the prismatic spectrum. These observations have been confirmed by M. Berard. He found that the chemical intensity was greatest as the violet end of the spectrum, and that it extended a little beyond that extremity. When he left substances exposed for a certain time to the action of each ray, he observed sensible effects, though with an intensity continually decreasing in the indigo and blue rays. Hence it is very probable that if he had been in possession of more sensible reactives† he would have observed analogous effects, but still more feeble, in the other rays. He concentrated, by means of a lens, all that part of the spectrum which extends from the green to the extreme violet; and likewise, by means of another lens, all that portion which extends from the green to the extremity of the red. The last pencil formed a white point so brilliant that the eye was scarcely able to endure it; yet the chloride of silver remained exposed to it two hours without undergoing any sensible alteration. But, when exposed to the first pencil, which, was much less bright and less hot, it was blackened in less than six minutes.*

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* Jour. de Phys., xxix. 81. When muriate of silver is exposed to the solar light it blackens almost instantaneously. In that case it is not oxygen gas which is emitted, but muriatic acid, as has been observed, also by Berthollet. See Jour. de Phys., lvi. 80.

† He employed chloride of silver, which becomes black; guaiac, which passes from yellow to green, as Dr. Wollaston first observed; and a mixture of chlorine and hydrogen. which detonate when exposed to light, as Dalton, and Gay-Lussac, and Thenard ascertained.

For the Photographic & Fine Art Journal.

IMPORTANCE OF CULTIVATION TO THE HELIOGRAPHER.

Mr. Editor,—In this country and in this 19th century, it were simply *superfluous* undertaking to demonstrate the proposition, that knowledge and intellectual discipline are of great value and importance to *every* man, whatever his pursuits and occupations may be.—*e. g.* to the farmer, the mechanic and the merchant, as well as to the artist and the professionist, in every sphere and degree. And thus important and worthful, both on the *general* grounds, that they supply rich, imperishable, and exhaustless resources of enjoyment, and of solace and support, for all the *exigencies* and alternating fortunes of life, whether joyous or saddening, and constitute the most graceful and attractive of ornaments to the individual character,—and also on the *special* ground, that, *by their possession*, every one is better qualified and equipped for reaching *distinction* and achieving *success* in his particular calling, be it what it may.

But if *general* knowledge and culture be of such avail to every individual, in that it tends to prepare him the more completely for prosecuting his vocation with aptitude and success, and so reaping therefrom both *reputation* and *pecuniary profit*,—of *how much* greater avail must be a familiar acquaintance, both theoretical and practical, with every matter bearing directly upon, or related to, or lying at the foundation of, such vocation? Thus, in the case of two persons possessing the same manipulative aptness, and equal dexterity in the use of all instrumentalities and appliances, we should, anterior to trial, declare at once, that HE is most likely of the twain, to win eminence and secure success, of all kinds, in any given vocation, who was the most thoroughly versed in every variety of information, scientific and artistic, connected with that vocation.

Let us now apply these generally conceded principles to the Heliographic Profession. And here we boldly propound the question, what Art now exists, or ever did exist among men, resting on more magnificent foundations, or more magnificently *related*, than Heliography?

Thus, on the very threshold, both as co-operant and furnisher of a chief element in the work, stands the Sun,—the great central light-dispenser, heat-giver, and fountain of all visual beauty,—the vast laboratory, from which issue the electric, magnetic, and myriad other yet unknown aromas,—the prescriber and continuous ruler of all planetary and cometary revolutions,—summarily, the *predominant*, if not *sole* principle of life itself, in all its diversities of manifestation, vegetal, animal, and human! In this Sun, which is the *chief*, as it is an *indispensable* agency in his Art, what a fascinating, soul-expanding, glorious, and inexhaustible subject for study, analysis and experimentation, does the Heliographer possess? A subject it is, too, which is *incessantly pressed* upon his consideration by the requirements of his profession. The more extensive, profound and accurate his acquaintance therewith, the greater the likelihood of his attaining excellence in every practical department of that profession. And in an Art which, after all, is still in its *infancy*, what opportunities for new discoveries and inventions, as well as for *improvements* in matters already in some degree known, are opened to the zealous and persisting student, explorer and experimentist!

Again, the *science of chemistry* is indissolubly involved in this Art,—a science so high, so deep, and so universal in its comprehensiveness, as almost to introduce us into the *creative workroom* of material Nature,—a science which, in its ultimate analysis, resolves not alone the impalpable airs and fluid waters, but the friable clods and impervious rocks into those self-same invisible gasses, or aromal elements, which ride in the fleet car of the sunbeam,—thus carrying the Heliographic explorer back to that grand light-flame, which is his ever-faithful and infallible, and mighty ally and copartner! In short, a science, which comprises within its limitless domain such incalculable treasures of both the useful and ornamental, offers to the Heliographer, who is, to some extent, *compelled* to use its resources, topics of investigation, which appeal alike to his interest, his ambition and his yearning for happiness.

Once more. Heliography is closely connected with the whole circle of the Fine Arts,—being indeed itself one of those Arts *in reality*, though, from accidental and temporary causes, not yet universally accredited as such. The entire range, therefore, of topics which relate, directly or indirectly, to the Fine Arts,—or, summing up all in a single phrase, the total domain of visual beauty and grandeur,—pertain to the Heliographer, as undisseverable parts of his vocation and legitimate themes for his research and experimentation. Thus, perspective—light and shadow—attitude and position—coloration, grouping, costume, expression, &c., are of no whit less essential consequence to him, than to the portrait painter. A *mastery* of the *principles* of each and all, and of their various *applications*, is for *him* a *sine qua non*—a possession, without which he is, in nowise, entitled to the name of Heliographer.

Now, are not the propositions above advanced, *true*—literally, rigorously, unevadeably true? No one, I think, will venture to deny them in *words*. But are they not *negatived* by the mass of Heliographers *in fact and in every day's practice*—in constant manifest *usage*?

Alas! might we but respond *nay!* But we cannot do so. And what are the *results*, that naturally and unavoidably follow?

A few of them we shall point out in our next.

M. A. Root.

From the Journal of the Pho. Soc.

APPARATUS FOR FILTERING COLLODION.

BY MR. JOHN SANG.

Read before the Photographic Society of Soctland, June 9, 1857.

Some samples of soluble cotton, in other respects of good quality, produce a collodion which does not clear perfectly upon being allowed to stand even for a lengthened time. The thickness is caused by minute particles of undissolved cotton. A drop of this collodion allowed to dry on glass, on being examined with a moderate magnifying power, is found to be interspersed with angular spects of different sizes. When the specks are very minute, they do not affect a picture much, and they may be associated with other qualities, giving a character of excellence or mediocrity to the sample. They have, however, so far as I have observed, always the property of rendering the negative easily spoilt in the operation of printing; so much so, that it is difficult to take more than three or four prints from an unvarnished negative of this kind without the effects of the specks becoming visible even under the slight magnifying power used in ordinary stereoscopes. These effects are small black dots appearing most prominently in the high lights, but in reality spread over the whole picture. The particles of undissolved cotton seem to be higher than the general surface of the hardened collodion, and to present points which are broken off by contact with the positive paper. Any one may be satisfied that the holes which appear after printing from negatives of this description, arise from the nearly invisible particles floating in the collodion, by coating part of a plate with the unfiltered collodion, and other parts with it filtered once or twice; by sensitizing the plate, exposing it to light, developing and fixing it; then when dry, rubbing the surface gently with a bit of paper, and examining the plate by transmitted light.

The filter which it is the object of this paper to describe is so very simple, that after having written out a description for the Society, it appeared so likely to be used in chemical experiments that I wrote to a friend well versed in chemistry, who informs me that it is in fact used to filter solutions of caustic potassa through quantities of broken glass, and that it is described in Griffin's 'Experimental Chemistry,' edition of 1857, page 429, and in Reid's 'Chemistry' of 1849, page 220. He advised me, however, still to send a description of it to the Society: I do so, leaving it to the Secretary to read it or not, as he thinks best. I have little doubt that many photographers will be glad to be acquainted with it, both for the purpose I have already mentioned, and for economizing the dregs of the collodion.

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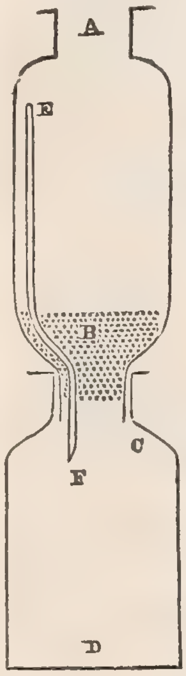
* Annals of Photography, ii., 165.

AB is a bottle holding about 6 or 8 ounces; the upper end A has a lip, and the neck is fitted for an ordinary cork; the under end B has no lip, and the neck is well ground to fit into the neck of the smaller bottle CD, and to be air-tight; the under bottle has a lip. EF is a narrow glass tube bent at B, so that when placed in the bottle AB, it does not fall through it. The end F of the tube is sloped away to a point. A little fine clean cotton is wrapped loosely round the tube at the bent place, and a small quantity is also packed round it at the neck and part of the under end of the bottle at B. The collodion to be filtered is poured in at A, taking care not to allow any of it to get into the glass tube, and the bottle is corked up. The collodion filters slowly through the cotton and drops from the end of the glass tube F, which, on account of being tapered away, is always open to allow of a communication for the air between E and F. It is as well to pour back the first portion filterered, as the cotton generally contains a little dust. If we wished to filter the collodion through common filtering paper instead of cotton, the paper should be folded into eight instead of four parts. It is then to be pushed through the neck A. By blowing into the bottle, the filter will be expanded, and one of the folds will receive the glass tube which has been previously put in its place; the collodion is then to be poured into the filter and the bottle corked up.



The filter being air-tight, there is no loss from evaporation; the collodion does not harden on the surface of the paper; and there being a free communication for the air between the surfaces of the under and upper fluids, the filtration takes place, in fact, as easily as it does for other liquids.

It may not be amiss to show how any one may extemporize a filter of this sort. In fact, between the time of sending away the drawing to the glass-house and getting back the apparatus, I made one from common phials, which answered the purpose as well in every respect as the more expensive one.

It is necessary to select two phials, the neck of the upper one of which with its lip also may pass into the neck of the under one; the upper phial, however, should be a moulded one, that is, having no punty mark. On applying the edge or corner of the bottom of such a phial for a few minutes to a grindstone, the bottom will fall off and leave a hole (on account of the method by which mouldered bottles are made), not only very round, but also tapering downwards, so that it may be rendered perfectly air-tight by a good cork. In order to make the junction at B and C impervious to the evaporating ether, it is only necessary to wrap some cotton moistened by gum arabic round the outside of the neck of the upper bottle and bind it well with a thread. The lip (which is allowed to remain) acts as a sort of flange, and allows a very neat work to be made with the cotton and thread. The glass tube is easily bent to the required form by holding it in the flame of a candle: a bit of a tobacco-pipe previously saturated with gum arabic and dried, will even answer its purpose at a pinch.

My friend informs me that the apparatus for filtering caustic potassa, and which is equally well adapted for collodion, is sold by Messrs. Griffin, of London and Glasgow.

Mr. James Ross.—There is nothing more annoying in small pictures than a number of spots, which I always attributed to free iodine, but Mr. Sang has shown this not to be the case, as I believe that it is owing to impurities in the collodion, which may be got rid of by using this apparatus. These spots are not seen in large pictures.

Mr. Walker.—I think that if the collodion has been well made and allowed to stand for some time, there will be no danger from this cause, but I have no doubt it will be very useful for those who wish to use their collodion to the last drop. A much better plan is to keep a quantity of it in hand, and to decant off the uppermost part of the fluid only, which will always be found pure.

Messrs Morfat and Hay concurred with the remarks of Mr. Walker.

Professor Wilson exhibited specimens of the new parchment paper. He said, there is something very remarkable in this susceptibility of cellulose to molecular change by mere contact with the fluid. There is no chemical change whatever. A solution of caustic soda is used as a means of producing devices in cotton. Take a cotton stocking and dip it in a solution of caustic soda, it will contract; and if it is dipped in the dye, it will dye to one degree in one part, and to a different degree in another. This is different from the action of nitric acid. In regard to the observations which have been made on the power to the solution of sulpho-quinine, to stop and change into luminous rays, the highly effective chemical rays: sensitive salts would be much more slightly acted upon, by interposing between them and the object a case or glass-box containing a solution of sulpho-quinine for the purpose of changing all the rays but those corresponding to the green rays. You might also use this solution in a suitable case as a substitute for the yellow fluid at present in use, as it would afford a much more acceptable light.

Mr. Walker.—I have tried the following experiment:—I took two sheets of calotype paper, and coated one-half of each with solution of the sulpho-quinine, 20 grains to the ounce; I exposed these both in the same light, one with $\frac{5}{8}$ths inch stop and 13-inch focus lens for five minutes, the other with $\frac{1}{4}$-inch stop for eight minutes. I found that on the half without the quinine I got a good picture, and on the other no picture at all.

Professor Wilson.—It was this fact which made me refer to this subject at all.

WASHINGTON GALLERIES.

Washington, D. C., Sept. 1, 1857.

Dear Snelling,—I promised to drop a line from the capitol of the United States, and let you know who and what was doing there. Mr. Whitehurst's Gallery has had the run for the past year, and justly so, for they have had the prince of photographers in Washington at this gallery—H. O'Neal and Mr. T. J. Simmond; the latter who with his many smiles and bows, induces all who come in to have a picture even if they do not want it. At this gallery they have the greatest collection of distinguished men in the world. All people of notoriety sit at this gallery, and from what I was told by Mr. O'Neal, they have 1000 negatives; all the last members of Congress of both houses. The gallery is small and their chemical and operating rooms small; but they manage to do the principal business that is done here.

Mr. Walker the portrait painter, has opened a photographic gallery, and is getting a good share of the business. His operator is James Cummings, Esq., a practical chemist of high standing. Mr. Cummings is the only rival O'Neal has in Washington, and when Mr. O'Neal leaves, he will stand alone for some time to come. Mr. W. makes a good show and is a fine artist.

There is to be a gallery opened here this winter I learn, by Mr. M'Clees of Philadelphia; if so, no doubt he will do a good business, for the coming winter bids fair to be very gay. Mr. Vannerson well known in Washington, and a fine operator, is I learn, to be connected with him. His rooms will be up town near the Kirkwood House, and his gallery will no doubt be very successful. The old gallery formerly occupied by Mr. V. does little or no business.

Mr. Grannis has left the city.

There are some three or four other galleries, but they all do a small business; all that is done can be done by one good gallery properly managed. Mr. O'Neal has taken often in a day 20 negatives, and furnished 100 prints, all mounted finely, and delivered them. This is rushing a little; but 'twas often done. The artists are but few here now. Mr. Stanley the Indian painter, has his residence here; also Mr. King, the old veteran, still lives to enjoy good health, and paints a little. In the winter, Mr. Healey, Col. John R. Johnston, and E. K. Johnson (the latter is now out west making sketches), Wm. Powell, Esq., will paint here this winter. I shall be pleased to refer hereafter to Washington. Truly yours, J. R. J.

PHOTOGRAPHIC COUNTERFEITING.

Professor B. Silliman, Jr., read a paper on photographic counterfeiting, before the Scientific Convention at its late session in Montreal, of which the following is the substance:—

Prevention of Counterfeiting.—*The* paper of the day in this Section was one by Professor B. Silliman, Jr., "on Bank-notes and the means adapted for the Prevention of Counterfeiting." Formerly the security against counterfeiting was found in the employment of engravers of high artistic skill; but the invention of photography had given such new and increased facilities for obtaining *fac similes* of genuine notes, that it became necessary to provide some new and more perfect method of guarding against these frauds. Mr. Syropean, an American gentlemen, (born in Greece, however, if the reporter mistakes not,] had proposed a plan which render a bank-note incapable of being photographed. His plan was to print his notes in colors, between which there was no photographic contrast. He therefore used for the print a blue of a light bright color, and a buff covering the whole ground, except where there were white spots left for beauty or for the figures representing value. This preventing photographic imitations. To guard against the anastatic or lithographic arts, he covered the whole face with an oleaginous matter which left no chemical contrast. The great objection to the plan was its want of beauty and its liability to spoil by finger marks and dust upon the oily material. In fact, nothing was so good in an artistic point of view as carbon ink on white paper. Mr. Syropean, therefore next attempted to make use of cycloidal lines drawn over the whole surface of the note, and printed in red, using for the design a black ink which was fugitive in its character. The patent was for the use of two fugitive inks, the black being more fugitive than the red. He could not praise very highly this second experiment, for, on holding one of the notes to the window, the black was found to be transparent. A photograph made from this note was fair, but not, however, good enough to answer the purpose of a counterfeit; but the great objection to it was the black could be removed without removing the red, and the red without injury to the black, which opened the way at once to the counterfeiter. This Mr. Silliman illustrated by a great many changes which he had produced on one of these notes. In this difficulty, then, what was to be done? He held in his hand a note printed on a green tint, produced by sesqui-oxide of chromium—an invention which originated in this Province; both colors here were unchangeable by anything which the chemist had at present at his disposal. At least, in practice neither could be decomposed without destroying the paper as well. the usual plan of altering bills was to wash out the figures and insert others; but here were two colors both alike unmanageable. They were not so beautiful as white and black; but beauty must be sacrificed to safety. While these notes were protected, therefore, against photographic imitations by the means he had mentioned, the fact that both inks were oleaginous, and that they presented no chemical contrast, made it impossible to subject them either to the anastatic or the lithographic process.

This will probably answer the purpose of science; but practically the solution is more easy. We should like to see any bank note printed in any two, three, or four colors, on *both* its face and back *photographically* counfeited, so as to deceive. We doubt its accomplishment. It is a *practical* impossibility.

From The Jour. of the Pho. Soc.

THE COLLODIO-ALBUMEN PROCESS.

15 Upper Parade, Leamington, June 30, 1857,

To the Editor of the Photographic and Fine Art Journal:

Sir,—If abuse were not a pleasure to some people, I should have been sorry that 'Anti-humbug' had troubled himself to abuse a few remarks I made on Collodio-albumen in the May Number of the Journal, and which I believe met with your editorial approval before they were inserted; and being so well versed in every part of that process yourself, I am sure you would not have allowed them to appear, if you had not seen something useful in them.

If had attempted to claim any originality in principle, his letter would have been deserved: all I claim is simplicity, and I believe I have succeeded in reducing the process to the possibility of obtaining a good picture with little trouble. I am rather surprised that he has not discovered that I borrowed my title as well as the process; Dr. Diamond's paper on the 'Simplicity of the Calotype process' in the 11th Number had nothing orignal in principle, but every photographer of the time will acknowledge the benefit the Docter conferred on the art by giving it publicity. I, also, merely attempted to give an old process in a simple form.

'Anti-humbug' leaves it to me to show wherein lies the advantage of deviating from the *original* formulæ of Mr. Ackland, and I will leave it to your readers to compare my paper with Mr. Ackland's; I believe they will find sufficient difference to justify you in inserting that stimulant to the critic's wrath. If I have added nothing, I have left out a great quantity of unnecessary preparations, made the process much more easy, brought it within the comprehension of amateurs, *without the expense of instructions* and ready-made solutions, and have made it equally certain: that is all that I proposed to do.

He suggests that original formulæ should be left as they are found; if so, there would have been no occasion for Mr. Ackland's paper, as the process had been previously invented and described by Dr. Taupenot. It is well known that every process is capable of improvement; but such men as 'Anti-humbug' would prevent any improvement if they could.

The advantage of using one silver bath instead of two, is, that one is sufficient: will he consider that a satisfactory answer? If he will be kind enough to read the notes I sent too late for your last publication, he will find that it *does not* possess the disadvantage of discoloration, but remains perfectly clear.

Why should I waste any more of either your time or my own on an anonymous tirade? I only regret I am obliged in self-defence to ask you to insert anything that will be of no interest to photographers generally.

Henry P. Robinson.

From the Jour. of the Phot. Soc.

PHILOSOPHY OF DEVELOPMENT.

To the Editor of the Photographic Journal.

Sir,—I perceive in your last Number, that Mr. Hardwich, in the preliminary remarks of his paper on Glycyrrhizine in Collodion, states, "We know that, as a rule, substances which have a colorific action on the darkening of chloride of silver, possess a similar effect in the development of the invisible image on iodide of silver." As I have devoted much attention to the subject of developing from the chlorides, and, as the results of many hundred experiments, have, I believe, elucidated some of the essential conditions that distinguish developing *chlorides* and *iodides*, I think I may say that further investigation will show that the above rule will need great qualification, if it do not rather prove to be the exception. In my own experiments I have discovered a large group of substances, possessing a well-defined chemical action, which under certain conditions specially influence the development of chlorides with reference to intensity, and that as a rule these substances do not possess a similar influence on iodides.

I question whether it is good philosophy, because we find groups of bodies similar in their general properties and relations, to argue too closely on supposed analogies in their special reactions.

W. J. Miers.

From the Jour. of the Phot. Soc.

COPYING BANK NOTES BY PHOTOGRAPHY.

Dublin, May 14, 1857.

To the Editor of the Photographic Journal:

Sir,—Considering the ease and fidelity with which photography produces copies of engravings and manuscripts, scarcely to be distinguished from the originals, and reflecting on the great insecurity of the paper money of our country in this particular, I have been induced to make some experiments in that direction. I first attempted to copy a note of the Bank of Ireland, by simple contact in the pressure-frame, and as far as the negative went, succeeded very well, the finest lines losing nothing in sharpness, but owing to want of opacity, the lights in the resulting positive became darkened before the shadows were sufficiently printed. This opacity might be gained by varnishing the note, but I was unwilling to make the experiment. Copying by reflection seemed to offer a great many advantages over this mode of proceeding, as with collodion any amount of opacity might be obtained; and by the kindness of Messrs. Nelson and Marshall, of this city, I was put in possession of a full-sized negative; part of a print from which I enclose. Although bearing a dangerous resemblance to the original, on "Papier Saxe" it is a very evident forgery, but were it printed on the same characteristic paper as the original engraving, I am convinced that in many instances the fraud would pass unnoticed, so skilful a copyist is the sun. On obtaining these prints, I enclosed two of them to the directors of the Bank of Ireland, proposing at the same time, as a preventive measure, the printing of the notes on *yellow paper*. It has, however, suggested to me, that any yellow color that could be so employed is, when compared with printing ink, unstable, and might be easily removed. Then it occurred to me that by embodying in the paper some substance which, if means were used to discharge the the yellow tint, should completely discolor the paper,—there would be nothing to fear in this way, but still, if a permanent and unchangeable yellow can be met with, it would be far preferable.

H. Draper.

[Our correspondent should have forwarded a genuine note for comparison; the one enclosed, if printed on thin paper, would undoubtedly be passable, if the receiver was careless or inexperienced, but no prudent forger would trust much to such a plan, when the chances of detection are so easy. A safe preventive seems to be to introduce colored printing in parts of the note.—Ed. *Jour. Phot. Soc.*] Our trans-Atlantic brethren are rather behind the age in this matter.—Ed. *P. & F. A. J.*

GUN COTTON,

A new method for invariably obtaining gun cotton for collodion, which is perfectly soluble, has been communicated to the Photographic Society of France. The discoverer, on removing the cotton from its bath of nitrate of potash and sulphuric acid, immerses it in monohydrated nitric acid of forty-eight degrees. The immersion must be as complete as rapid, or the cotton cannot remain in the nitric acid without undergoing some modification—it must be instantly removed and thrown into the washing trough. For this operation distilled water is preferrable in order to avoid any saline substance that may be held in solution in ordinary water, which always interferes with the collodion.

From the London Art-Journal.

THE FALLS OF NIAGARA.

There is now an exhibiting at Messrs. Lloyd's, in Grace church Street, one of the most striking and interesting pictures the hand of the artist has everproduced; it represents the most wonderful waterfall of the world—that of Niagara—and is the production of a distinguished American painter, Frederick Edward Church, of New York. The work would do honor to any school of Art; and we are certainly not surprised to learn that it has excited much enthusiasm in the States, where it has been received, universally, as in all respects an achievement of the highest importance. We have been enabled—and so may any of our readers—to ascertain the value of the fervid criticisms which have come to us from the other side of the Atlantic, where, however, the truth of this ambitious copy of a marvellous scene must have been subjected to the severest test; for no doubt many of its critics are familiar with the original. One of our correspondents writes to us thus:—"Years have elapsed since we sailed over the lakes of Northern United States; stopped awhile at Niagara; passed through the 'Thousand Islands,' over the fearful rapids; looked from the heights of Montreal, the uplifted bastions of Quebec, and took our leave of the St. Lawrence at the charming falls of Montmorency. Since that time we have seen Vesuvius, the Alps, and the Rhine; but no constant scene in nature, that we have ever beheld, so overwhelms one as does the majestic Falls of Niagara. We studied this great scene for days, and from almost every point of view. From Victoria Point, the best view, we studied it as a whole, and listened for many hours to the deep fearful notes of its great anthem; the rising mist with its gorgeous color appearing like an eternal incense, offered from this great altar of nature up to nature's God. On the deck of the adventurous little steamer we passed along the shore of the seething rapids below—mostly by means of return eddy—near the bank; until from the very midst of this terrific scene, we looked up through the mist and the spray, and almost felt the green plunging ocean was crushing us in its way: we could not breathe; the trembling boat pushed along—it touched the current—in a moment we were a mile below." The writer proceeds to praise the picture as the most meritorious attempt that has been yet made to convey to the eye the several grand peculiarities of this wonderful scene. We are fully and entirely with him in his enthusiasm; although we can but fancy that which he has seen—the awful grandeur of the might whirl of waters—it seems to us that no work of its class has been more eminently successful: it is truth, obviously and certainly. Considered as a painting, it is a production of rare merit: while admirable as a whole, its parts have been all carefully considered and studied; broadly and effectively wrought, yet elaborately finished. We have seldom examined a picture that so nobly illustrates the power of Art.

From the Jour. of the Phot. Soc.

PRIORITY OF INVENTION OF THE HONEY PROCESS.

Maison Ramonet, Bagnères de Bigorre, June 15, 1857.

To the Editor of the Photographic Journal.

Sir,—As I feel that I have already fairly stated my claim to the invention of the honey process in the letters which I have written in reply to those of J. S., and have already cited dates of publication in my favor which J. S. has never really contradicted, it would be useless to add anything further, but merely to say that, as he desires that *his* letters may be perused once more, I hope *mine* may be also read, and it will there be found that my first publication was made a month before that of Mr. Shadbolt, in which publication I stated in so many words that my process not only increased the sensitiveness, but also gave the power of preserving the collodion plate in the sensitive condition. I had the pleasure of showing to you, Mr. Editor, the results of my process before I published them, and at the same time they were shown to Mr. Murray, the well-known optician, by whose kindness they were placed on the table at a soirée of the Royal Institution.

MARGARET.

Negative by L. E. Walker.—H. H. Snelling, Print.

I enclose a positive of one of these proofs, which I doubt not you will recollect. I might even cite others, to whom I had the honor of showing the results of my process, but these cannot fail, I should think, to be sufficient.

F. Maxwell Lyte.

[Since Mr. Maxwell Lyte has appealed to me personally for evidence on this matter, I will simply state the facts to which he has alluded. Some time in the early part of the month of May, 1854, Mr. Lyte showed me several negatives and positives from the same, of vessels in full sail, waves of the sea, &c., in illustration of the exalted sensitiveness which he had been able to communicate to the collodion film, by the application of honey to its surface, according to a process which was to appear in the next Number of 'Notes and Queries.' Mr. Lyte also stated that his process not only *increased* the sensitiveness, but also *preserved* it for several hours, and as a proof exhibited a view of an interior which had been exposed for four hours in the camera. I remember distinctly he said he considered that the *keeping* properties of the honeyed film were owing to a retention of moisture on the surface of the plate, being similar in action to the nitrate of zinc in the process which Mr. Spiller and myself had just published.—W. C.]

From the London Art Journal.

VISIT TO THE CATACOMBS

Of San Calisto, and the Church of San Sebastiano.

To-day, along the Appian Way, that "*regina viarum*" so inexhaustible in recollections, every stone, every broken wall, has its history, forming portions of the great mosaic making up the chronicles of bygone centuries. Out by the tombs of the Scipios, (where the rich marble sarcophagus lay hid, deep buried in the gloom of the long subterranean galleries) through the triumphal arch of Drusus, backed by the loftier pile of the Porta Sebastiano, whose twin turretted towers rising aloft deepen the shadows around. On, along the high, walled-in road, roughly paved, too, as though we were still struggling in the city; on, perhaps for two miles; I pass a low door in the wall, over-shadowed by trees, waving over a ruined mass of stone, once a tomb, wreathed and garlanded with luxurious ivy. Beside that grove and that tomb, sheltered by those dark trees, is the entrance to the catacombs of St. Calixtus, whither I am bound, but not to enter there. I go on a little way, and come to a church, which is that of San Sebastiano, standing in a kind of piazza. There is nothing particularly venerable or ancient in its aspect, and yet it strikes me with a thrill, as a strange mysterious spot; perhaps from association, for I know that from this church I am about to descend into the catacombs, that living book, palpable and immortal, where are written in the blood of the martyrs, or with the unready pencil of some unknown artist, the faith, the manners, the customs, every detail of the painful, suffering, yet sublime lives of our Christian ancestors; a book without end, both for the Christian and the antiquarian! The monk acting as guide not being forthcoming, I have plenty of time to look about me. The church stands on the fall of a hill, and is shaded by a whole grove of funereal cypresses, the only living green appropriate to the dark memories attached to it. In front there is an open space, and a pillar, behind a natural wall of tufa-rock of a fine rich tinge, as though warmed by centuries of bright sunshine beating against its sides, overwoven with cypress, ivy, weeds, and wallflowers, matted and massed together, and fringed with festoons of hawthorn, just bursting into blossom in snowy wreaths, amid the fresh green of the leaves, like Spring weaving garlands round the wrinkled forehead of old Time. Beyond, on the summit of another hill, stands the massive tomb of Cecilia Metella, that "stern round tower of other days," the grandest monument of the Street of tombs. By-and-by I will go nearer, but am first intent on the catacombs. I felt the most intense to explore those refuges, serving to the early Christians while living as a hiding-place, an asylum for themselves, their mysteries, their tears, their prayers, when dead, as a resting-place to all the members of the Church, specially the sainted martyrs. The very designations given to them are suggestive of their destination, and full of holy poetry. Beside the more general name of catacombs, they were called "hidden place," subteranean refuge," "councils of martyrs," "sanctuaries," "resting-place," "memorials," "peace," "havens," and "thrones." Could any but the devoted Christians have thus designated prisons and tombs, filled with decaying mortality, where death disputed the mangled remains yet palpitating with a life often too rudely destroyed, and the worm accomplished the melancholy mysteries of the sentence delivering dust to dust, earth to earth? As Pompeii shows paganism as it existed in its religion, manners, arts, and customs, public and private, so the catacombs, the cradle of the Church, display Christianity as it existed eighteen centuries ago.

I entered the church, a spacious building, handsomely decorated, but without a single claim to antiquity, although it is the last of the seven Basilicas, and was founded by Constantine. Some ill-disposed cardinal, however, stepped in about the middle of the last century, and destroyed every vestige of the past. Here is the tomb of St. Sebastian, under the altar, bearing his name, where he is represented in a marble statue of some merit, lying dead, pierced with silver arrows. The statue is by Giorgetti, pupil of Bernini, and the French taste apparent may be better pardoned when it is remembered that Sebastian was a Gaul, born at Narbonne, and a soldier in the Roman armies. He suffered under Dioclesian, who, discovering that he was a Christian, condemned him to be shot. But, when covered with arrows, and fainting from intense suffering, he was left as dead by his executioners, a pious widow, who had obtained permission to bury him, discovered that life was not extinct. Under her care he recovered from his wounds, but refused to fly from Rome, and shortly afterwards placed himself before the emperor, and, publicly reproached him for the cruelties he exercised towards the Christians. Dioclesian was at first overwhelmned with astonishment at the sight of a person he believed to be dead, but, recovering from his surprise, gave orders in great anger that he should be seized immediately and beaten to death with cudgels, and his body thrown into the common sewer, which sentence was executed, but his remains were preserved by a Christian called Lucina, who interred them where they were found, in the entrance of the catacombs of St. Calixtus. Opposite his altar an immense collection of relics is displayed, among which the arrows extracted from his wounds are pointed out; many others there are also, which I had not time to inspect, as the monk now approached who was to accompany me below, a brown-robed, bare-footed friar, more akin to death, darkness, and the tomb, than to the living. He presented me with a small lighted taper, opened a door in the nave of the church, and, after descending some twelve or fifteen steps, we found ourselves in the catacombs. A low-arched passage cut in the pozzolana rock opened to engulph us, and in a moment, save for the feeble glimmering of the tapers, we were in utter darkness. Labyrinths of innumerable low galleries appeared in every possible direction, while on either hand of the space we traversed (which just allowed of our walking without stopping), appeared range above range of lateral excavations, sufficiently large to contain a body, the graves of the old, the young, children, soldiers, popes, martyrs, rich and poor, mingling their common dust; shelves, as it were, of wasting mortality, more instructive in the great lessons of life than a thousand volumes crowded in the gilded libraries of the learned; for here the great page lay open to the world, and he who ran could read the end of hope, youth, life, joy, sorrow, disease, or martyrdom, traced by the finger of Time on the small divisions of this mighty charnel-house. At the beginning of the catacombs no bones were visible, they having been removed as relics into different churches. Tenantless yawned the narrow apertures which, when the last trumpet shall sound will have nothing to render. The monk crept noiselessly on; a great silence reigned in the fathomless vaults, and a gloom, like the Egyptian darkness, *to be felt*. Not a plant, not a bird, nor smallest living animal, recalls one's imagination from the absolute picture of silent, impenetrable death around. How gloomy and horrible a prospect!

oppressive and soul-consuming, but for the immortal faith we share in common with the beautified saints whose bones populate these mournful shades. May our faith, like theirs, lead us to the bosom of the just!

Passage after passage opened on either side in a network of labyrinthal confusion, each, so similar, bordered by the ranges of sepulchres, that, but for the glimmer of the monk's taper preceding me I should have been lost in a moment. I recalled all the horrid stories I had ever heard of people lost in these very monumental caverns; and trembled, for I felt that no dexterity, no calculation could ever extricate one from so complicated a maze. Once lost, all hope expires, and nought remains but to wander and wander on and on through these damp vaults, until exhaustion, hunger, and horror overcome the fated wretch, who at length, pillowed by a tomb, sinks down to die. I cannot describe the wild distorted fancies, the feelings of awe and wonder that came over me as I followed the steps of the dark robed monk through these intricate recesses. After awhile my apprehensions and terror became quieted, and I remembered with gratitude that it is to this darkness and obscurity we owe (humanly speaking) the very existence of Christianity, preserved as it were for centuries in the bowels of the earth, to reappear in the fulness of time, triumphant, and be proclaimed with one voice the religion of the universe, sanctifying the very temples of the false gods, building up the broken altars but a few years before resplendent with the gorgeous worship of the whole circle of Olympus. Inscrutable and past finding out are the ways of the Omnipotent, bringing forth vitality and immortality out of idolatry, darkness, and the tomb! What a picture do these dark vaults display of the devotion, the zeal, the love, of those early Christian converts whose baptism was in blood! I pictured them to myself, stealing forth from the city in the gloomy twilight, out towards the lonely Campagna, and disappearing one by one through well known apertures, threading their way through the dark sinuous galleries to some altar, where light, and life, and spiritual food, the soft chanting of the holy psalms, and the greeting of faithful brethren waking the echoes awaited them. The sight of these early haunts of the persecuted and infant religion are inexpressibly affecting, and I pity those, be they Protestant or Catholic, who can visit these hallowed precincts without an overwhelming emotion. How many martyrs, their bodies torn and lacerated by the cruel beasts, amid the infuriate roars of thousands shrieking forth the cry of *Christianos ad leonem!* in the bloody games of the Flavian amphitheatre, breathing their last sigh, calling on the name of the Redeemer, have passed, borne by mourning friends, or by compassionate widows or virgins to their last dark narrow home along the very path I was now treading! How many gloried saints now singing the praises of the Eternal around the great white throne in the seventh heaven of glory, may have been laid to rest in these very apertures, lighted by the flickering taper that I held. But I must pause—this is an endless theme, endless as the glory of those who hover in eternal light and ecstatic radiance above; it is moreover a Pæan I feel utterly unworthy to sing.

To resume, I wandered on, bearing my taper close on the noiseless steps of the monk. Sometimes we descended narrow damp steps in lower stories, the walls of porous tufa still perperforated with countless tombs piled closely one above another; sometimes we ascended. In all there are four separate stories in these catacombs, and the confusion of the labyrinth, after wandering for a little space, becomes perfectly overwhelming and positively distressing. Now and then we came upon a square opening, where service was performed over the grave of some special saint, the tomb of the dead serving as the altar to the living. I could not but observe the striking similarity in these arrangements to those now existing in all the martyr churches of Rome. Antiquity at least, and the example of the primitive Church, are on the side of the Catholics. "The same slab," says Prudentius, "gives the sacrament, and faithfully guards the martyr's remains; it preserves his bones in the sepulchre, in hope of the Eternal judge, and feeds the Tibricolæ with sacred meat. Great is the sanctity of the place, and near at hand is the altar for those who pray." Some of these chapels are extremely small and low, others comparatively large, but no fresco paintings are found in the catacombs of St. Calixtus. In one spot after descending many steps to the very lowest story of the tier of catacombs, three chapels open into each other. I also remarked that in their immediate neighborhood many ways and passages meet and intersect with tenfold confusion, but countless as are the galleries still open, the mouths of many more are closed to avoid danger. These chapels cannot fail deeply to impress the imagination as being the very *sanctum sanctorum* of the early martyrs, where they drank of that cup, and tasted that immortal food which alone sustained frail mortality under the torments awaiting them. They are called "*Monumentum arcuatum*" from the arch over the tomb, leaving the flat portion of the slab at liberty for the celebration of the sacramental mysteries. Here, too, were held the "Agapæ," or love-feasts—not to be confounded, however, with the holier rite which Protestants accuse Catholics of having subsequently permitted to degenerate into masses for the dead—to be celebrated over, or near, their mortal remains. These were the days of the Church's humiliation; she who, sharing the human nature of her Divine master, was predestined to rise from the earth, and to begin her career in infinite nothingness. At this early period, according to the "*Liber Pontifitalis*," the holy utensils for the celebration of the eucharist were of glass, and were the sole treasure possessed by the infant Church, the donations of the pious senator, father of those holy virgins Sta. Prassede and Pudenziana, whose names are deservedly honored by the Church as the devoted preservers of the martyr's remains. The senator's estate, and that of the Christian widow Lucina, formed the nucleus of the ecclesiastical possessions.

As I penetrated with the monk deeper and deeper into this mysterious region, I could not but feel alarmed at the solitude of my situation; my fears even prompted me to doubt his knowledge of the intricacies in which we were involved. But he soon silenced my apprehensions by his calm reply, "*Non abbia pausa, Signora.* For ten years I have lived here, more below than above the ground. I know every turn, every step so well, I could walk it in my sleep." "But," said I, seeing the taper flickering and waning ominously under the currents of damp air, "suppose your light goes out?" "*Non importa*," said he; "I could take you out safely without them." After this assurance, I ceased to fear, and again abandoned myself to the strange impressions created by the consecrated gloom. The atmosphere in the catacombs is warm and pleasant, though somewhat close. I only perceived a feeling of damp when we descended to the fourth, or lowest story, and then but slightly. I saw many open graves, containing what once were bones, which, when exposed to the air literally crumbled into a handful of dust; I also saw many unopened tombs. When an inscription or other outward indication invites curiosity, and the sepulchre is opened, within is found nothing but dust, representing by its position the form of a human body; no indication remains of the bones; even this faint evidence of the human form divine vanishes at the slightest breath or the gentlest touch. Sometimes a few bones remain, and it is not rare to find a sword or some other instrument indicative of martyrdom. Thus did the savage nations of the north place armor in the tombs of their chief, or portions of the spoil gathered from his enemies. But the lamp, and the *ampolle*, or vessels filled with blood, are the clearest and most undeniable evidences of the martyr's resting-place; evidences, too, the most adapted to heighten the zeal and increase the faith of the living believers who behold them.

I was particularly interested in one chapel, where that most holy man, San Filippo Neri, justly called the Apostle of Rome, the founder of the Oratorians, had, during a period of ten years, constantly slept. What unutterable visions of beatitude and glory must have visited his soul here, where I stood, when he thus rested alone with the souls of the departed. What imagination can conceive the heavenly raptures he enjoyed—he, whose whole life was one long record of charity, humility, and active devotion, and whose death was actually caused by an excess of spiritual love. San Carlo Borromeo, the great Milanese saint, another brilliant example of devoted charity and holiness, is also said to have passed many nights in these sacred solitudes. As we retraced our steps, the tomb of St. Cecilia was pointed out to me; the body has been removed into her church, in the Trastavere, which I have already described; but the flat stone which enclosed it, engraven with her name and the particulars of her cruel death, still remains beside the open tomb, offering many interesting and suggestive recollections to those acquainted with her history. After threading mazy windings, utterly confusing, we at last emerged at the foot of the stair leading into the church, beside the tomb of San Sebastian, whose remains when found here were removed into the church above. It is surmounted by an exquisite half-figure of the saint, by Bernini. Could I impress my readers with the solemn awe, the overwhelming reflections that visited my soul while wandering among the holy dead, my visit to the catacombs, instead of being weak and unimpressive in description, would stand forth, as I felt it, an epoch in my life, an event never to be forgotten. But, alas! perhaps from the overwhelming multitude and magnitude of my emotions, I am the less able properly either to define or to describe them.

BALTIMORE GALLERIES.

Baltimore, Md., September 7, 1857.

Friend Snelling,—It is with great pleasure that I notice the progress of the Photographic Art in Baltimore. We may be said to have now here some of the best operators in photography in the Union. Great preparations are being made for the Fair to be held here this fall, and more will be made—but instead of our photographists and ambrotypists making their work, placing it on the walls, and letting it rest upon its own merits, they log-roll to get the committees in their favor. By this way, nothing but a one-sided opinion is given. Why not, I would simply ask, let pictures rest upon their own merits, and leave committees to judge for themselves. There is no need for any one to deny this charge; 'twas done last year, and the probability is 'twill be attempted this. But the man who does it, shall be showed up in a proper light.

Since my last article, Mr. Whitehurst's gallery has been burned out. I learn there was an insurance of some $10,000 upon it; the pictures and stock was nearly a total loss. Mr. W. is about to open his new gallery—from the outside show he makes, it bids fair to be a fine gallery. As to who is to operate I cannot tell, and what artist is to figure in painting no one knows.

Mr. Pollock has at length secured the valuable services of Mr. Hugh O'Neil. Mr. P. will now be in possession of the best operator we have in the whole South, and I may add one of the best in the Union. Mr. P. is sparing no pains to make his gallery second to none in the country. What Mr. P. has lost heretofore in not being able to produce for want of help, he will make up now by having Mr. O'Neal as his photographic chemist.

Mr. P. L. Perkins.—Of this gentleman we are not fully posted up, he appears to be busy; and although a modest man without much pretension, manages to blow pretty hard for his own gallery. And who has a better right?

Mr. Israel, whose gallery is near Mr. P., has made some successful prints with the solar camera; one of Edwin Booth, Esq., the actor, in characters as large as life. Those who have seen it say 'tis good. Mr. I. has stood for some time back, at the head of Photography in Baltimore; but in his rival, Mr. O'Neal, there will be great competition. One great thing about both of these gentlemen is their untiring industry—neither wishing to be outdone.

The business of photographing and ambrotyping in Baltimore is at a low ebb—as I said before simply because there was no one here to push the business as it should be. It is rumored that Mr. B. F. Hawks, is about to take the old stand occupied by Whitehurst, and open a gallery. If so, he will get a good share of the public patronage, as Mr. H. is a salesman that cannot be excelled. Here the business of ambrotyping and photographing is probably one of the most lucrative businesses in Baltimore, and yet the finest number make little or nothing from the simple fact they lose sight of dollars to take care of *fips*; now this may seem strange, but 'tis so. You can be liberal on many occasions where you are not, therefore you lose what may be had simply by throwing off a few coppers to gain dollars. I hope to see a better spirit of liberality existing amongst the photographic men of the city, than does at the present time. Mr. Woodward and his solar camera does but little as yet, but expect to do more hereafter.

Mr. Elisha Lee has gone into the business of preparing canvas for photographic prints very largely; his canvas is superior to any other I have ever seen tried, and he deserves to be patronized for his untiring labors in perfecting this composition, whereby the photograph can be printed on and painted equal to paper. In my last article I said Mr. Bebee had modelled two spirited and beautiful allegorical pieces in marble; I was in error, Mr. Rhinehardt is the artist that should have the credit, for he is a clever deserving gentleman, trying hard to climb the ladder of fame. Mr. R. studied in Florence, and his works need only be seen to speak for themselves. There are some 10 or 15 different galleries here all of which do fine business independent of those above-named. The chemicals used by photographers are to be had here, but not equal to New York. But our stock market is good, Mr. Wisong, is able to supply all demands here in the various branches. By the time your next number appears, I will be able to give you a lengthy criticism on the pictures at the Fair, to be held here next month. Yours, J. R. J.

From the Liverpool and Photographic Journal.

THE CALOTYPE OR TALBOTYPE.

"It may be proper," observes Mr. Talbot, in the introduction to his "Pencil of Nature," "to preface these specimens of a new art by a brief account of the circumstances, which preceded and led to the discovery of it. And these were nearly as follows:—

"One of the first days of the month of October, 1833, I was amusing myself on the lovely shores of the Lake of Como, in Italy, taking sketches with Wollaston's camera lucida, or rather, I should say, attempting to take them; but with the smallest possible amount of success. For when the eye was removed from the prism—in which all looked beautiful—I found that the faithless pencil had only left traces on the paper melancholy to behold.

"After various fruitless attempts I laid aside the instrument, and came to the conclusion that its use required a previous knowledge of drawing, which unfortunately I did not possess.

"I then thought of trying again a method which I had tried many years before. This method was to take a camera obscura and to throw the image of the objects on a piece of transparent tracing paper laid on a pane of glass in the focus of the instrument. On this paper the objects are distinctly seen, and can be traced on it with a pencil with some degree of accuracy, though not without much time and trouble.

"I had tried this simple method during former visits to Italy, in 1823 and 1824, but found it in practice somewhat difficult to manage, because the pressure of the hand and pencil upon the paper tends to shake and displace the instrument (insecurely fixed, in all probability, while taking a hasty sketch by a roadside or out of an inn window); and if the instrument is once deranged, it is most difficult to get it back again so as to point truly in its former direction.

"Besides which, there is another objection, namely, that it baffles the skill and patience of the amateur to trace all the minute details visible on the paper; so that, in fact, he carries away with him little beyond a mere souvenir of the scene—

which, however, certainly has its value when looked back to in long after years.

"Such, then, was the method which I proposed to try again, and to endeavor as before to trace with my pencil the outlines of the scenery depicted on paper; and this led me to reflect on the inimitable beauty of the pictures of nature's painting which the glass lens of the camera throws upon the paper in its focus —fairy pictures, creations of a moment, and destined as rapidly to fade away.

"It was during these thoughts that the idea occurred to me. How charming it would be if it were possible to cause these natural images to imprint themselves durably, and remain fixed upon the paper!

"And why should it not be possible? I asked myself.

"The picture, divested of the ideas which accompany it, and considered only in its ultimate nature, is but a succession or variety of stronger lights thrown upon one part of the paper, and of deeper shadows on another. Now light where it exists, can exert an action, and in certain circumstances does exert one sufficient to cause changes in material bodies. Suppose, then, such an action could be exerted on the paper; and suppose the paper could be visibly changed by it. In that case, surely some effect must result having a general resemblance to the cause which produced it; so that the variegated scene of light and shade might leave its image or impression behind stronger or weaker on different parts of the paper according to the strength or weakness of the light which had acted there.

"Such was the idea that came into my mind. Whether it had ever occurred to me before amid floating philosophic visions, I know not, though I rather think it must have done so, because on this occasion it struck me so forcibly. I was then a wanderer in classic Italy, and of course unable to commence an inquiry of so much difficulty; but least the thought should again escape me between that time and my return to England, I made a careful note of it in writing, and also of such experiments as I thought would be most likely to realise it, if it were possible.

"And since according to chemical writers, the nitrate of silver is a substance peculiarly sensitive to the action of light, I resolved to make a trial of it, in the first instance, whenever occasion permitted on my return to England.

"But although I knew the fact from chemical books, that nitrate of silver was changed for decomposed by light, still I had never seen the experiment tried, and therefore I had no idea whether the action was a rapid or slow one; a point, however, of the utmost importance, since if it were a slow one, my theory might prove but a philosophic dream.

"Such were, as nearly as I can now remember, the reflections which led me to the invention of this theory, and which first impelled me to explore a path so deeply hidden among nature's secrets. And the numerous researches which were afterwards made—whatever success may be thought to have attended them—cannot, I think, admit of a comparison with the value of the first and original idea.

"In January, 1834, I returned to England from my continental tour, and soon afterwards I determined to put my theories and speculations to the test of experiment, and see whether they had any real foundation.

"Accordingly, I began by procuring a solution of nitrate of silver, and with a brush spread some of it upon a sheet of paper, which was afterwards dried. When this paper was exposed to the sunshine, I was disappointed to find that the effect was very slowly produced in comparison with what I had anticipated.

"I then tried the chloride of silver, freshly precipitated, and spread upon paper while moist. This was found no better than the other, turning slowly to a darkish violet color when exposed to the sun.

"Instead of taking the chloride already formed and spreading it upon paper, I then proceeded in the following way. The paper was first washed with a strong solution of salt, and when this was dry, washed it again with nitrate of silver. Of course, chloride of silver was thus formed in the paper, but the result of this experiment was almost the same as before, the chloride not being apparently rendered more sensitive by being formed in this way.

"Similar experiments were repeated at various times, in hopes of a better result, frequently changing the proportions employed, and sometimes using the nitrate of silver before the salt, &c., &c.

"In the course of these experiment, which were often rapidly performed, it sometimes happened that the brush did not pass over the whole of the paper, and of course this produced irregularity in the results. On some occasions, certain portions of the paper were observed to blacken in the sunshine much more rapidly than the rest. These more sensitive portions were generally situated near the edges or confines of the part that had been washed over with the brush.

"After much consideration as to the cause of this appearance, I conjectured that these bordering portions might have absorbed a lesser quantity of salt, and that, for some reason or other, this had made them more sensitive to the light. This idea was easily put to the test of experiment. A sheet of paper was moistened with a much weaker solution of salt than usual, and when dry, it was washed with nitrate of silver. This paper, when exposed to the sunshine, immediately manifested a far greater degree of sensitiveness than I had witnessed before, the whole of its surface turning black uniformly and rapidly; establishing at once, beyond all question, the important fact, that a lesser quantity of salt produced a greater effect: and as this circumstance was unexpected, it afforded a simple explation of the cause why previous inquirers had missed this important result in their experiments on chloride of silver, namely, because they had always operated with wrong proportions of salt and silver, using plenty of salt in order to produce a perfect chloride, whereas what was required (it was now manifest) was to have a deficiency of salt, in order to produce an imperfect chloride, or (perhaps it should be called) a *sub-chloride* of silver.

"So far was a free use or abundance of salt from promoting the action of light on the paper, that, on the contrary, it greatly weakened and almost destroyed it so much so, that a bath of salt water was used subsequently as a fixing process to prevent the further action of light upon sensitive paper.

"This process of the formation of a sub-chloride by the use of a very weak solution of salt, having been discovered in the spring of 1834, no difficulty was found in obtaining distinct and very pleasing images of such things as leaves, lace, and other flat objects of complicated forms and outlines, by exposing them to the light of the sun.

"The paper being well dried, the leaves, &c, were spread upon it, and covered with a glass, pressed down tightly, and then placed in the sunshine; and when the paper grew dark, the whole was carried into the shade, and the objects being removed from off the paper, were found to have left their images very perfectly and beautifully impressed or delineated upon it.

"But when the sensitive paper was placed in the focus of a camera obscura, and directed to any object, as a building, for instance, during a moderate space of time, as an hour or two, the effect produced upon the paper was not strong enough to exhibit such a satisfactory picture of the building as had been hoped for. The out-line of the roof and of the chimneys, &c., against the sky was marked enough, but the details of the architecture were feeble, and the parts in shade were left either blank or nearly so. The sensitiveness of the paper to light, considerable as it seemed in some respects, was therefore, as yet, evidently insufficient for the purpose of obtaining pictures with the camera obscura; and the course of experiments had to be again renewed in hopes of attaining to some more important result.

"The next interval of sufficient leisure which I found for the prosecution of this enquiry, was during a residence at Geneva, in the autumn of 1834. The experiments of the previous spring were then repeated and varied in many ways; and having been struck with the remark of Sir H. Davy's which I had casually met with, that the *iodide* of silver was more sensitive to light than the *chloride*, I resolved to make trial of the iodide. Great was my surprise on making the experiment to find just the contrary of the fact alleged, and to see that the iodide was not only less sensitive than the chloride, but that it was not sentitive at all to light;* indeed that it was absolutely insensible to the strongest sunshine; retaining its original tint (a pale straw color) for any length of time unaltered in the sun. This fact showed me how little dependance was to be placed on the statements of chemical writers in regard to this particular object, and how necessary it was to trust to nothing but actual experiment; for although there could be no doubt that Davy had observed what he described under certain circumstances, yet it was clear also that what he had observed was some exception to the rule, and not the rule itself. In fact further enquiry showed me that Davy must have observed a sort of subiodide, in which the iodine was deficient as compared with the silver; for as in the case of the chloride and subchloride, the former is much less sensitive, so between the iodide and subiodide there is a similar contrast, but it is a much more marked and complete one.

"However, the fact now discovered, proved of immediate utility; for, the iodide of silver being found to be insensible to light and the chloride being easily converted into the iodide by immersion in iodide of potassium, it followed that a picture made with the chloride could be *fixed* by dipping it into a bath of the alkaline iodide.

"This process of fixation was a simple one, and it was sometimes very successful. The disadvantages to which it was liable did not manifest themselves until a later period, and arose from a new and unexpected cause, viz., that when a picture is so treated, although it is permanently secured against the *darkening* effect of the solar rays, yet it is exposed to a contrary or *whitening* effect from them; so that after the lapse of some days the dark parts of the picture begin to fade, and gradually the whole picture becomes obliterated, and is reduced to the appearance of a uniform pale yellow sheet of paper. A good many pictures no doubt escape this fate, but as they all seem liable to it, the fixing process by iodine must be considered as not sufficiently certain to be retained in use as a photographic process, except when employed with several careful precautions, which it would be too long to speak of in this place.

"During the brilliant summer of 1835 in England, I made new attempts to obtain pictures of buildings with the camera obscura; and having devised a process which gave additional sensibility to the paper, viz., by giving it repeated alternate washes of salt and silver, and using it in a moist state, I succeeded in reducing the time necessary for obtaining an image with the camera obscura on a bright day to ten minutes. But these pictures, though very pretty, were very small, being quite miniatures. Some were obtained of a larger size, but they required much patience, nor did they seem so perfect as the smaller ones, for it was difficult to keep the instrument steady for a great length of time pointing at the same object; and the paper being used moist was often acted on irregularly.

"During the three following years, not much was added to previous knowledge. Want of sufficient leisure for experiments was a great obstacle and hindrance, and I almost resolved to publish some account of the art, in the imperfect state in which it then was.

"However curious the results which I had met with, yet I felt convinced that much more important things must remain behind, and that the clue was still wanting to this labyrinth of facts. But as there seemed no immediate prospect of further success, I thought of drawing up a short account of what had been done, and presenting it to the Royal Society.

"However, at the close of the year in 1838, I discovered a remarkable fact of quite a new kind. Having spread a piece of silver leaf on a pane of glass, and thrown a particle of iodine upon it, I observed that colored rings formed themselves around the central particle, especially if the glass was slightly warmed. The colored rings I had no difficulty in attributing to the formation of infinitely thin layers or strata of iodide of silver; but a most unexpected phenomenon occured when the silver plate was brought into the light by placing it near a window. For then the colored rings shortly began to change their colors, and assumed other and quite unusual tints, such as are never seen in the '*colors of thin plates*.' For instance, the part of the silver plate which at first shone with a pale yellow color, was changed to a dark olive green when brought into the daylight. This change was not very rapid: it was much less rapid than the changes of some of the sensitive papers which I had been in the habit of employing, and therefore, after having admired the beauty of this new phenomenon, I laid the specimens down for a time, to see whether they would preserve the same appearance, or would undergo any further alteration

"Such was the progress I had made in this enquiry at the close of the year 1838, when an event occurred in the scientific world which in some degree frustrated the hope with which I had pursued, during nearly five years, this long and complicated, but interesting series of experiments—the hope, namely, of being the first to announce to the world the existence of the New Art—which has been since named Photography.

"I allude, of course, to the publication in the month of January, 1839, of the great discovery of M. Daguerre, of the photographic process which he has called the Daguerreotype. I need not speak of the sensation created in all parts of the world by the first announcement of this splendid discovery, or rather, the fact of its having been made (for the actual method made use of was kept secret for many months longer). This great and sudden celebrity was due to two causes: first, to the beauty of the discovery itself; secondly, to the zeal and enthusiasm of Arago, whose eloquence, animated by private friendship, delighted in extolling the inventor of this new art, sometimes to the assembled science of the French Academy, at other times to the less scientific judgment, but not less eager patriotism, of the Chamber of Deputies.

"But having brought this brief notice of the early days of the photographic art to the important epoch of the announcement of the Daguerreotype, I shall defer the subsequent history of the art to a future number of this work.†

"Some time previous to the period of which I have now been speaking, I met with an account of some researches on the action of light, by Wedgwood and Sir H. Davy, which until then, I had never heard of. Their short memoir on this subject was published in 1802, in the first volume of the Journal of the Royal Institution. It is curious and interesting, and certainly establishes their claim as the first inventors of the Photographic Art, though the actual progress they made in it was small. succeeded, indeed, in obtaining impressions from solar light of flat objects laid upon a sheet of prepared paper, but they say they found it impossible to fix or preserve those pictures: all their numerous attempts to do so having failed.

"And with respect to the principal branch of the art, viz., the taking pictures of distant objects with a camera obscura, they attempted to do so, but obtained no result at all, however long the experiment lasted. While‡ therefore due praise should be awarded to them for making the attempt, they have no claim to the actual discovery of any process by which such a picture can really be obtained.

"It is remarkable that the failure in this respect appeared so complete that the subject was soon after abandoned by themselves and others, and as far as we can find, it was never, resumed again. The the thing fell into entire oblivion for more than thirty years; and therefore, though the Daguerreotype was not so entirely new a conception as M. Daguerre and the French Institute imagined, and though my own labors had been still more directly anticipated by Wedgwood, yet the improvements were so great in all respects, that I think the year 1830 may fairly be considered as the real date of the birth of the Photographic Art, that is to say, its first public disclosure to the world."

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* In a lecture at the Royal Institution we mentioned this statement of Mr. Talbot's, whereupon, at the conclusion of the discourse, Mr. Faraday was good enough to inform us that Davy certainly knew of the *insensitiveness* of iodide of silver, for he had mentioned the fact in Mr. Faraday's presence, while discussing with Gay Lussac, at Paris, the nature of iodine, then recently discovered. Davy produced this fact as proving that iodine was not likely to be a modification of chlorine; the chloride of silver being readily altered by the light, while he alleged iodide remained unchanged.—[Ed. L. & M. P. J.]

† "The Pencil of Nature."

‡ The words used by Davy are "in any moderate time of exposure."

The *Pencil of Nature* was discontinued after twenty-five plates, accompanied by descriptive letter-press, had been issued. The history of the art was not alluded to in the subsequent parts of the work, except incidentally, as for instance, at the end of the description of the fifteenth plate, which represents Mr. Talbot's residence at Lacock Abbey, in Wiltshire, when we are informed that "It was the summer of 1835 these curious self-representations [of the Abbey] were first obtained. Their size was very small; indeed, they were but miniatures, though very distinct; an the shortest time of making them was nine or ten minutes."

From the Liverpool Photographic Journal.

MANCHESTER PHOTOGRAPHIC SOCIETY.

A special meeting of the members of this Society was held on the evening of Wednesday, August 5th, at the rooms of the Literary and Philosophical Society, 36 George street, under the presidency of T H. Nevill, Esq, for the purpose of receiving a communication from Mr. Sidebotham, on a new and valuable process in dry collodion, the announcement of which had attracted a large attendance of members.

Mr. SIDEBOTHAM read the following paper

"ON A DRY COLLODION PROCESS."

Some time ago, I had the honor to read before this Society a paper on the Collodio-albumen Process, and I am glad to say many of the members have successfully used the formulæ then given I have now to lay before you another process, more simple and more certain; indeed, it appears to me to be one of the most valuable additions to practical photography since the invention of the collodion process, and I quite think that it will soon supersede all other dry processes on glass. The particulars of this process were given to me some weeks ago by a friend in Paris, and since my return I have found it of such apparent value, that at the request of some of the members I am here this evening to explain it, that many of you may make use of it in obtaining some fine negatives during the summer and autumn.

No doubt many of you will smile when the process is described, it is so nearly like what has been tried over and over again. So long ago as the end of 1851 I tried the process, with the exception of one point, and of course failed, because success depended on that point.

The process is as follows:—Prepare a collodion plate in the same manner that you would one intended for the wet process; when the plate is removed from the sensitizing bath, wash it well in a bath or dish, and afterwards with a stream of water, so as to remove all the moisture as soon as possible, then rear it up to dry; when quite dry, expose it for a few minutes to artificial heat, either in an oven or on a hot plate, the temperature should be between 150 and 200 degrees Fah.; then allow to cool, and put away in a plate box for use. The exposure required is somewhat the same as in the collodio-albumen process, perhaps rather less is required, say from two to four minutes—in the printing frame, with good daylight, one to five seconds is quite enough—in the camera, those who have practised collodio-albumen, will have no difficulty in judging of the time. Develope either with gallic or pyrogallic acid, and fix with cyanide.

I will now give a few remarks on the various parts of the process:—

The silver bath is composed of

Nitrate of silver	45 grains.
Water	1 oz.
Glacial acetic acid	½ dram.

The drying by artificial heat prevents the film cracking or separating from the glass during the subsequent processes. The mode of development I prefer is as follows. Prepare—

Pyrogallic acid	1 grain.
Water	1 oz.
Citric acid	¼ gr.

And—

Nitrate of silver	2 grs
Water	1 oz.

Attach the plate to a holder, and then wet the surface with a stream of water, and drain it well; then pour on and off some of the pyrogallic solution two or three times; after this mix a little of the silver solution with the pyrogallic, and again pour on and off; the image appears rapidly, almost as quickly as in a moist collodion negative. The quality of the collodion appears to be a matter of great importance; it must form what is usually called a powdery or rotten film, a characteristic of old collodion, or that made with gun cotton produced by acids at a high temperature; it should be moderately thick, and rather strongly iodized.

It is to be hoped the makers of collodion will give us a kind specially adapted for this process, and save us the trouble of many experiments. In a collodion with a tough film like Thomas's, the image begins to appear very rapidly, but remains faint; if more silver is added the intensity is increased, but it is only on the surface, and may be rubbed off with the finger, the original faint image being only visible.

I will now show you specimens of the process, and develope a few plates prepared on Saturday, and the images impressed this morning. I may just remark, that for the production of transparent pictures for the stereoscope or magic lantern this process is invaluable; the results are beautiful, and the time in producing them not more than is required for the production of ordinary positives on paper.

Mr. DORRINGTON moved that the warmest thanks of the meeting be presented to Mr. Sidebotham, to whom the Society was so much indebted, both on this and many other occasions.

Mr. PARRY seconded the motion, and

The CHAIRMAN, in putting it, remarked that great credit was due to Mr. Sidebotham, not only for bringing early news of the process to the Society, but the great success he had had so soon in it. Judging from the specimens on the table, and those which Mr. Sidebotham had developed in the room before them, the process was capable of great things; but, he confessed that success had not attended the attempts of himself and two or three others who had tried it.

The motion was carried by acclamation, and

Mr. SIDEBOTHAM briefly returned thanks, and volunteered to give every explanation in his power which might be required by members as to failures, and assured them that everything known to him on the matter was embodied in the statement he had made.

The pictures developed in the room were prints from collodio-albumen negatives, taken by Mr. Sidebotham in Paris, and some days elapsed since their preparation.

The CHAIRMAN, before leaving the chair, requested members to remember that a portfolio had been provided, which he hoped would receive numerous contributions at their hands. He also asked that members, wishing to read papers during the ensuing session, would communicate early with the Secretary.

The SECRETARY reminded members that the fund for the widow of the late F. S. Archer was still open, and stated that he had just then received two additional subscriptions. It was announced that the next meeting of the Society would be the annual meeting.

HYDROCHLORATE OF AMMONIA.—This salt is prepared by mixing an excess of ammonia with the hydrochloric (muriatic) acid; it is then evaporated by gentle heat and left to crystalize. It is very soluble in alcohol. Advantage can be taken of this property to prepare the photographic paper, first with albumen simply; then, the albumen being dry, place the albuminized side, in a bath of alcohol at 36° containing 5 per cent. muriate of ammonia.

From the Liverpool Photographic Journal.

PAPER FOR PHOTOGRAPHY.*

The mass of pulp having been beaten fine some four or five hours after the preliminary tearing, or grinding as it is called by some, becomes slightly warm, and by that time the linen fibres have been combed out into a mass of straight minute filaments; all is now ready for moulding into a sheet of paper. The short or long fibre-stuff is taken from the engine and put into a wooden trough or vat, where it is mixed with a sufficient quantity of warm water, to form a pulp of the proper consistency for moulding, and the whole is kept warm throughout this part of the process; it is also important that the mass should be kept stirred to prevent the pulp from settling or getting clotted. This stirring is sometimes effected by machinery, but in our case it was accomplished by a stout wooden hand-stick vigorously used. We now proceed to the actual moulding, but let us first describe the mould, and this we cannot do better than in the words of a writer on the "Manufacture of Paper" in one of the cheap publications of the Society for Promoting Christian Knowledge. "The mould consists of a neat frame of mahogany, with wooden bars running across it, at the distance of about an inch and-a-half from each other. Upon this framework is fastened a surface of wire-cloth woven for the purpose, and containing from forty-eight to sixty-four wires in an inch, varied according to the fineness of the paper and the nature of the pulp. The mould is furnished with a *deckle*, or moveable raising edge, which the vatman always holds in his hand; it is made to fit exactly all round the edge of the mould, and prevents the pulp from flowing over and leaving a rough edge. By means of this instrument, the *water edge* is produced, which, we may observe in passing, being different to the edge produced by any other means is generally adopted in the paper used for bank notes. The moulds are made of various sizes, corresponding with the sheets required. In making paper by hand two men are required at each vat, one is called the *vatman* and the other the *coucher;* the vatman is furnished with two moulds in order to save time, for while the coucher is taking off a sheet from one mould the vatman is filling the other. The vatman stands at one side of the vat, and the coucher nearly opposite to him, at the corner of the side on the vatman's left; between them, along the top of the vat, is a board called a bridge, with copper fillets fastened lengthwise upon it, along which the vatman slides the mould to the coucher. The stuff in the vat being properly prepared, the vatman takes one of the moulds, furnished with its deckle, by the middle of the short sides, and plunges it obliquely four or five inches into the vat, when, taking up a quantity of the stuff upon it, he raises it to a level, shaking it so as to distribute the stuff and form a uniform fabric; while doing so, he gradually raises the mould, the water escapes through the wires, and the superfluous stuff escapes over the sides of the frame. This operation, however, simple it may appear, is a very delicate one, and requires a long apprenticeship to perform successfully; the stuff requires to be very equally distributed over the surface of the mould, and the mould to be held perfectly level when taken out of the vat, otherwise the sheet would be imperfect, or thicker in one part than another; the manner in which the "shake" is given is also of the greatest importance to the firmness of the paper. There are few men skilful and strong enough to keep up the proper action necessary to the well-felting together of the mass. As soon as a portion of the water has drained off, the vatman raises the deckle and slides the mould, with the wet sheet upon it, along the bridge to the coucher, who places it for a few seconds in an inclined position, in order that any excess of water may drain off; meanwhile, he places a piece of felt or blanketing upon a wooden plank, and then taking the mould, presses the face of it upon the felt, which receives and takes off the sheet from the mould, although still in a very wet state; the mould is returned to the vatman, who, by this time has filled his second mould, and is ready to give a second sheet to the coucher. The process is continued by piling up on each other, alternately, a sheet and a piece of felt till several quires of paper have been formed. The pile of felt and paper is then loaded with a heavy plank, and conveyed to a press where more water is squeezed out: when removed from the press the paper can be handled. The sheets are separated from the felts and placed together in a *pack*, while the felts are returned to the coucher and vatman, who proceeded as before We may here observe, that for our photographic paper experiment we had the finest wire-cloth we could well use, and the smoothest felts we could persuade the maker to adopt. The smoothness of the felt seems to us to be an important point.

On first witnessing the moulding operation I at once suggested that a smooth cloth should be used to receive the still plastic sheet, but I was met with the objection, that the pulp would not leave the wire cloth of the frame unless a *coarse* surface was applied to it. I was assured that this was a recognized fact, and that nothing was to be done but to accept the universal practice. It was evident to me that there was a radical defect in the process of manufacture for photographic purposes; for not only was there the irregular surface produced by bringing the upper side of the mould sheet in contact with the first sheet of felt, but the comparatively smooth condition of the side hitherto only in contact with the wire-cloth was next indented and roughened in various ways by pressing upon it a second piece of coarse felt, which in its turn was, by its upper surface, to indent the next newly moulded sheet—and so on to the end. To alleviate my anxiety, I was told that all the alarming appearances that now presented themselves would disappear under future manipulations. This statement I did not believe; for I was looking to uniformity of *texture*, and not merely to a seeming uniformity of *surface*. I foresaw that the irregularities in thickness could never be subsequently equallized, however much they might be disguised by being *compressed*. A little consideration will shew the magnitude of this evil. Let us suppose the still plastic sheet to be equal in thickness, and otherwise uniform, and now examine the *brand* with which it is stamped or embossed! The felt surfaces present an irregular series of cavities and projections distributed at hazard. It may, and does happen that a projection in the lower felt is opposite to a projection in the upper one, here the soft pulpy mass is nearly perforated, and here the sheet is deficient in substance; adjoining this thin place, or not far off, the felts have their cavernous portions so arranged that a little knot of pulp is, by the pressure around, forced into both cavities, like a nut in its shell. Here the sheet is obviously thicker than the desired medium Of course, in other places the hollows and projections may so coincide as to leave the thickness unaltered, but the embossing thus produced is painfully evident to the sensitive experimenter. By repeated *pressings* and *partings* of the *pack* of sheets the inequality is attempted to be diminished, as far as the surface goes. We shall subsequently see further mischief arising from this rude mode of procedure. Before proceeding to describe the manipulation following the moulding and pressing, I would observe that, at a later period, I proved that a *rough* surface was not essential to the removal of the pulp from the mould for I *couched* a sheet upon *glazed* blotting-paper! and, even by attaching a strip of blotting-paper to the upper *edge* of the sheet, I could strip the pulp from the mould, and suspend it to dry. Extremes are said to meet; and it may be that the finest woollen cloth is not fine enough to allow of a superior adhesive action coming into play. The coarse felt probably acts only by entangling the pelpy mass. The pile of sheets which have now been removed from the felts, and subjected to further pressure, constitute a *pack*, which has to be *parted*—that is to say, each sheet, still damp, has to be stripped of the pack, and a new pack formed, to be pressed as before. A second parting takes place, and a new pressing, and these operations are repeated five or six times, with a view to counteract the ill effects of the rough felts. The paper also becomes more compact by this singular species of manipulation. At this stage of the process an ingenious use is made of the principle of *elasticity*. The pack covered by a board, receives the power of the press through a movable upright bar of wood, which is simply placed upright between the top of the press and the pack, of which latter, indeed, it forms a part. After the sheets have undergone some hours pressure in the pack, they might be removed by simply unscrewing the press, but then there is a chance that the sheets will be found adhering so strongly as to tear in the process of separation I had learnt that this was the case, and was accordingly anxious to see how our new linen paper would behave. The time for the removal had arrived—the press was about to be unscrewed, when suddenly the master of the works exclaimed, "Knock away the *Sampson.*" The press was left untouched, and a good sledge hammer instantly applied to the upright bar, which, on account of its *instantaneous* release, allowed the fibrous mass to spring up visibly, and occupy a larger bulk than if the pressure had been slowly withdrawn. Each sheet now parted readily and perfectly, and had only to be dried to render it fit for sizing, an operation to be discussed in our next number.

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* Continued from p, 280, vol. x no. ix.

From the Jour. of the Phot. Soc.

ON THE MANUFACTURE OF COLLODION.

BY EDWARD ASH HADOW, ESQ.

[Mr. Hadow's papers on collodion, read before the Photographic Society of London, are regarded as standard authorities, and therefore deserve a place in this *Journal.* An incomplete abstract of them only having been hitherto presented to our readers, we have no hesitation in thinking it useful to reprint them in *extenso* from the Society's Journal.]

"Having in my earlier experiments on the collodion process of photography experienced some difficulty in always producing a collodion of uniform quality with regard to sensitiveness, tenacity, and fluidity, although making use of the same materials for its preparation, and this I find being the complaint of many others, it has been my study lately to determine the variations in quality to which the ingredients are liable, and the effects of those variations on the sensitive film, and likewise to ascertain whether the excellent qualities of some samples of collodion depend on the materials in ordinary use, or on some substances accidentally or intentionally added. Researches on the preparation of collodion may appear superfluous, now that it is supplied of the best quality by so many makers, but as some persons of an independent turn of mind still prefer manufacturing their own, I venture to bring forward the subject with the hope of benefitting these. In this beautifol process so much depends for success on the quality of the collodion, that when in possession of a good specimen it becomes one of the casiest and most simple, and ought to be the most certain of all the processes yet devised; for here no material of uncertain composition is introduced, such as paper, and thus we have nothing to fear from plaster of Paris, alumina, or specks of iron or copper, which continually endanger or modify the calotype process; each ingredient can and ought to be obtained in a state of perfect purity, and *with this precaution,* the degree of success depends upon the skill of the operator himself.

"Of all the substances used in this process, the gun-cotton is usually the only one actually prepared by the operator himself; in this case he cannot fail to have observed the great variations in solubility, and when dissolved, in the transparency and tenacity of the films to which it is liable; the various processes also that are given to appear at first sight unaccountably different, some directing ten minutes,' others a few seconds' immersion. In consequence of this I have specially examined into the cause of all these variations, with a view to obtain certainty, and also have endeavored to discover how far they affect the sensitiveness of the prepared surface. If we take a mixture of the strongest nitric and sulphuric acids and immerse as much cotton as can be wetted, after some minutes squeeze out the acid as far as possible, then immerse a second portion of cotton, and again express the acids for a third portion of cotton, and so on until the liquid is exhausted, we shall find, on comparing the cottons thus treated, after washing and drying, that there is a gradual alteration in their properties, the first being highly and perfectly explosive, and each succeeding portion less so, until the portion last immersed will be found hardly explosive, leaving distinct traces of charcoal or soot when burned. This may not appear supprising at first sight, as it may be imagined that the latter portions are only a mixture of gun-cotton and common cotton; this is, however, not the case, for if each quantity be immersed sufficiently long, it will not contain a fibre of common cotton, and may yet become charred on burning *like* unaltered cotton. The most remarkable difference, however, is discovered on treating them with æther containing a little alcohol, when, contrary to what might have been anticipated, the first or strongest gun-cotton remains quite untouched, while the latter portions dissolve with the utmost ease, without leaving a trace behind, which alone is a sufficient proof that no unaltered cotton remains. This difference in properties is owing to the gradual weakening of the acid mixture, in consequence of the nitric acid being removed by the cotton, with which it becomes intimately combined, at the same time that the latter gives out a proportionate quantity of water. In consequence of these experiments, a great many mixtures of these acids were prepared of various strengths, each being accurately known, both to determine whether there were more than one kind of *soluble* gun-cotton, and, if there were, to ascertain exactly the mixture required to produce that most suitable to photographic purposes. By this means, and by what I believe has not been pointed out, *varying the temperature,* at least five varieties were obtained:—first, gun-cotton properly so called as before stated, quite insoluble in any mixture of alcohol and sulphuric æther. Secondly an explosive cotton, likewise insoluble, but differing chemically from the first, obtained by a mixture of certain strength when used *cold.* If *warm,* however, either from the heat produced spontaneously on mixing the two acids, or by raising the temperature artificially to about 130°, the cotton then immersed becomes perfectly soluble, producing a third variety; if, however, it be *thoroughly* dried it becomes in a great measure insoluble. The fourth is obtained by means of weaker acids used cold, and the fifth when the mixture has been warmed to 130° previous to the immersion of the cotton; in either of the two last cases the product is perfectly soluble, but there is a remarkable difference between their properties, for on dissolving six grains of each in one ounce of æther, the cotton treated with *warm* acids gives a perfectly fluid solution (which is likewise the case with the third variety produced by acids somewhat stronger,) while that obtained by the use of cold acids makes a mixture as thick as castor oil.

"Having obtained these more strongly marked varieties, as well as intermediate kinds with all gradations of solubility, it was necessary, before I could select any particular formula for preparing the cotton, to compare their photographic properties, with especial reference to sensitiveness, opacity of the reduced silver in negatives, and its color in positives. A certain weight of each being dissolved in a portion of the same mixture of alcohol and æther previously iodized, the comparison was made by taking the same objects with each collodion in succession, and likewise by pouring two samples on the same plate of glass, and thus exposing them in the camera together side by side; this last proved to be much the most satisfactory plan, and was repeated many times for each sample, taking care to reverse the order in which they were poured on, that there might be no mistake arising from the difference of time elapsing between the pouring on of the collodion and its immersion in the sensitive bath. By these experiments I had confidently hoped to have solved the question as to the cause of difference in sensitiveness and other photographic properties of collodion; but in this I was disappointed, for, after repeated experiments, I believe I may saffely affirm that they are precisely similar as regards their photographic properties. The same, I believe, may be said of Swedish paper collodion, judging from a few comparative experiments I have made, and indeed it is difficult to discover what is the superiority of this material over clean cotton-wool; the ease of manipulation which some allege, is a matter of taste, but I should decidedly prefer the open texture of cotton to that of a substance like filtering paper, composed of a mass of compacted fibres, the innermost of which are only reached when the acids have undergone a certain degree of weakening by water abstracted from the outer fibres; and when we consider that from cotton alone we have the means of preparing all varieties of collodion, from the most powerfully contracting and transparent to the weakest and most opaque, and each if required with equal and perfect certainty, there appears to be choice enough without resorting to another material, differing only in being more rare and more difficult to procure. But although the *photographic* properties of these varieties of collodion wool are so similar, other circumstances, such as fluidity, tenacity, and transparency, render its preparation of some importance, and indicate that the acid mixture should always be used *warm;* and it is chiefly in consequence of this very circumstance, that greater success attends the use of nitrate of potash and sulphuric acid than that of mixed acids; for the former, when mixed, becomes solid, whereas acids, when mixed, produce the required temperature, and *must* be used while warm, since on cooling the mixture becomes solid, whereas acids when mixed do not usually produce so high a temperature, and being fluid can be used at any subsequent period; another obstacle to their use is the great uncertainty of the strength of the nitric acid found in the shops, requiring a variation in the amount of sulphuric acid to be added, which would have to be determined by calculation or many troublesome trials. When a proper mixture is obtained, the *time* of immersion is of no importance, provided it be not too short, and the temperature be maintained at about 120° or 130°; ten minutes is generally sufficient, (though ten hours would not render the cotton less soluble, as is sometimes asserted).

"In using the mixed acids the limits are the nitric acid being too strong, in which case the product is insoluble, or too weak, when the cotton becomes immediately matted, or even dissolved if the mixture is warm. I have availed myself of these facts in order to produce a collodion wool by the use of acids, without the trouble of calculating the proper mixture according to their strength. Five parts by measure of sulphuric acid, and four of nitric acid of specific gravity not lower than 1·4, are mixed in an earthenware or thin glass vessels capable of standing heat; small portions of water are added gradually, (by half-drachms at a time, supposing two ounces to have been mixed), testing after each addition by the immersion of a small portion of cotton; the addition of water is continued until a *fresh* piece of cotton is found to contract and dissolve on immersing; when this takes place, add half the quantity of sulphuric acid previously used, and, (if the temperature does not not exceed 130°, in which case it must be allowed to cool to that point), immerse as much cotton, well pulled out, as can be easily and perfectly soaked; it is to be left in for ten minutes, taking care the mixture does not become cold, and then transferred to cold water and thoroughly washed; this is a matter of much importance and should be performed at first by changing the water many times until it ceases to taste acid, and then treating it with boiling rain water, until the color of blue litmus remains unchanged; the freedom from all trace of acid is ensured by adding a little ammonia *before* the last washing. Cotton thus prepared should dissolve perfectly and instantaneously in æther containing a little alcohol without leaving a fibre behind, and the film it produces be of the greatest strength and transparency, being what M. Gaudin terms "rich in gun cotton." The mixture of nitrate of potash and sulphuric acid is defective chiefly from the want of fluidity, in consequence of which the cotton is less perfectly acted on: this may be remedied by increasing the amount of sulphuric acid, at the same time adding a little water: a mixture of five parts of dried nitre, with 10 of sulphuric acid, by weight, together with one of water, produces a much better collodion wool than the ordinary mixture of 1 of nitre with 1½ of sulphuric acid. The nitre is *dried* before weighing, in order that its amount, as well as that of the water contained in the mixture, may be definite in quantity; it is then finely powdered, mixed with the water, and the sulphuric acid added; the cotton is immersed while the mixture is hot, and afterwards washed with greater care even than is required when pure acids are used, on account of the difficulty of getting rid of all the bisulphate of potash that adheres to the fibres, which both acts as an acid and likewise causes the collodion to appear opalescent when held up to the light; whereas the solution should be perfectly transparent.

"Having obtained good collodion wool, the next point of enquiry was with regard to the solvent; to ascertain whether the addition of alcohol beyond what is absolutely necessary, to cause the solution of the gun-cotton in æther, were beneficial or otherwise. For this purpose æther and alcohol were prepared perfectly pure,* and mixtures were made of 1 of alcohol to 7 of æther 2 to 6, 3 to 5, 4 to 4, and 5 to 3. In once ounce of each were dissolved 6 grains of gun-cotton and four grains of iodide of ammonium (iodide of potassium could not be employed, since it requires a certain amount, both of water and alcohol, to keep it in solution); they were then compared, using a 35-grain solution of nitrate of silver, both by pouring on separate glasses, and likewise by covering two halves of a plate with two samples, as in examining the gun cottons, thus placing them under the same circumstances during the same time; in this way the effect of adding alcohol was very clearly perceived, since the differences between the collodions was much greater than could have been anticipated. The first mixture containing only one-eighth of alcohol was quite unfit for photographic purposes, from its being almost impossible, even with the most rapid immersion, to obtain a film of uniform sensitiveness and opacity throughout, the surface generally exhibiting nearly transparent bands, having an irridescent appearance by reflected light. The second mixture with one-fourth of alcohol is liable to great uncertainty, for if there be any delay in pouring off the collodion the same appearances are seen as in the first, and like it the surface is very insensitive to light, while if the plate be rapidly plunged in the bath, the collodion film becomes much more opaque than before, and is then very sensitive. The third proportion of 3 of alcohol to 5 of æther is decidedly the best, giving without the least difficulty a beautifully uniform and highly sensitive film, at the same time perfectly tough and easily removeable from the glass if required. A farther addition of alcohol, as in the two last collodions, was not attended with any corresponding advantage or increase of sensitiveness; on the contrary, the large proportion of alcohol rendered them less fluid though with a smaller quantity of gun-cotton they would produce very good collodions, capable of giving firm films: the cause of the weakness of the film observed on adding much of the ordinary alcohol is the large amount of water it usually contains.

"This surprising improvement, caused by the addition of a certain quantity of alcohol, is referable to causes partly chemical, partly mechanical; for on examining the films it will be found in the first and occasionally in the second collodion, that the iodide of silver is formed *on the surface*, and can be removed entirely by friction without destroying the transparent collodion film below, while in those collodions that contain more than ¼th of alcohol, the iodide of silver is *wholly in the substance*, and in this state possesses the utmost sensitiveness. This difference of condition is owing to the very sparing solubility of æther in water, which in the first case prevents the entrance of the nitrate of silver into the film, consequently the iodide and silver solutions meet on the surface; but on the addition of alcohol, its solubility enables the two to interchange places, and thus the iodide of silver is precipitated throughout the substance *in a state of the utmost division.* This difference is clearly seen under the microscope, the precipitate being clotted in the one case, while in the other the particles are hardly discoverable from their fineness. The presence of a little water considerably modifies these results, since it in some degree supplies the place of alcohol, and it is so far useful; but in other respects it is injurious, for, accumulating in quantity, if the collodion is often used, it makes the film weak and gelatinous, and what is worse full of minute cracks on drying, which is never the case when pure æther and alcohol are used. Since the æther of the shops almost always contains alcohol, and frequently water, it is important to ascertain their amount before employing it for the preparation of collodion; the quantity of alcohol may be easily ascertained by agitating the æther in a graduated measure glass (a minim glass does very well) with half its bulk of a *saturated* solution of chloride of calcium; this should be poured in first, its height noted, and the æther then poured on its surface, the thumb then placed on the top, and the two agitated together; when separated, the increase of bulk acquired by the chloride of calcium indicates the quantity of alcohol present, and for this allowance should be made in the addition of alcohol afterwards to the collodion. Water is readily detected, either in æther or alcohol, by allowing a drop to fall into spirit of turpentine, with which they ought to mix without turbidity; this is immediately produced if they contain water; for detecting water in *alcohol*, benzole is a more delicate re-agent than spirit of turpentine (*Chemist*, xxix. 203). It is also necessary that æther should be free from a remarkable property it acquires by long keeping, of decomposing iodides and setting free iodine, which thus gives the collodion a brown color; the same property may be developed in any æther, as Schönbein discovered, by introducing a red hot wire into the vapor in the upper portion of a bottle containing a little æther and water; if it be then shaken up and a solution of an iodide poured in, the whole rapidly becomes brown, this re-action is very remarkable and difficult to explain, for even a mixture of æther and nitric acid fails to produce a color *immediately*. Æther thus affected can only be deprived of this property by rectification with caustic potash.

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* Add from 10 to 15 drops of water to the iodide of potassium when that salt has to be mixed with *pure* alcohol. Ed. L. & M. P. J.

"And here I would for the present conclude, purposing, with your permission, to proceed to the subject of iodizing, as well as that of the nitrate bath, on some future occasion."

[*To be Continued*]

OUR ILLUSTRATIONS.

I.—GENERAL WILLIAM WALKER.

Negatives by Webster Bros., Louisville, Ky.—H. H. Snelling Print.

These negatives are very fine, and we have succeeded in producing very fair—as a general thing—positive proofs. The great fault of our manipulator is over-timing in the fixing and toning baths; but we shall arrange matters so as to prevent this in next years illustrations. The history of General Walker is so recent and has been so widely spread before the public by the daily and weekly papers, that it is quite unnecessary for us to enlarge upon it. Messrs. Webster have been long in the photographic business; having removed to Louisville, Ky., about seven years ago, from Poughkeepsie, N. Y. While in Poughkeepsie, they deservedly enjoyed the highest reputation as daguerrean artists, and they have sustained the reputation there formed with marked ability since their removal not only in daguerreotypes, but in every other branch of photography to which they have devoted themselves.

II.—MARGARET.

Negative by L. E. Walker.—H. H. Snelling, Print.

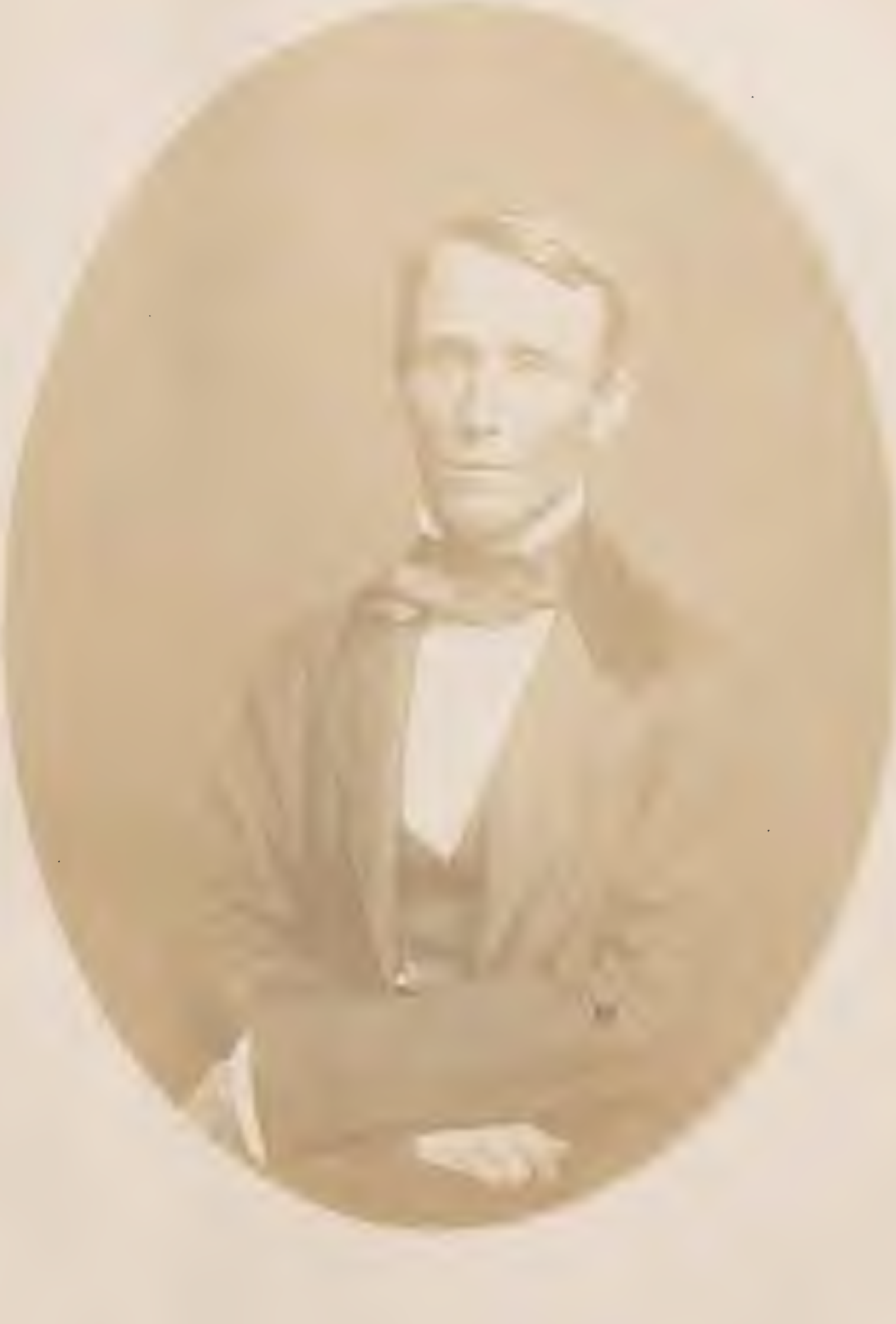
This is a fancy portrait from life, and does Mr. Walker great credit, as it was taken during his novitiate in the art. Mr Walker is now engaged on the Capitol extension at Washington. The principal faults in this picture as well as in the first are in overtoning.

The formulas for printing have been given in the June number; which we think is one of the best ever compounded—being easily managed, and susceptible of producing a great variety of colors.

Photographers who intend to send us negatives (one of a kind will answer), will oblige if they make them on glasses 11x13 in. This will enable us to improve the positives very materially.

Personal & Art Intelligence.

— We do not believe there is another class of people whose ignorance subjects them to so much imposition as that of the photographer. There are many very valuable discoveries continually being made in the Art; but there are a vast deal more that are worthless; and these last seem to meet more ready sale among photographic artists than the first. Captain Maryatt wrote a very pleasant book—*The Pasha of Many Tales*—giving an account of a British sailor who was made prisoner by the Turks, and taken before a Pasha and who undertook to defer his sentence of death by entaining his Highness with marvelous stories. His tales were of the most marvelous kind, and contained but *one truth* throughout the whole of them; that truth consisted in the fact that the sailor had seen rain fall in England in beautiful white flakes, which covered the ground like a white mantle. The Pasha, although he implicitly believed every word related of the marvelous and impossible kind, declared he could not swallow so outrageous a falsehood as this about the snow, and commanded the poor sailor's head to be instantly struck off for presuming upon his credulity. Now the photographic artists of this country are very much like the Pasha, and we have no doubt—from what we often hear—that many of them—had they the right—would exercise his power. What they *cannot* understand they *will not* believe; but let any one show specimens of photographic manipulation, and by force of argument make them *think* they understand the *modus operandi* of their production, they will freely disgorge their small earnings to possess the *great secret*, and live but a short time to discoverer its worthlessness They, however, do not add to the discovery the knowledge of their folly and their ignorance, and the best means of avoiding these deceptions, although they curse the man who had deceived them, as well as all other discoveries; yet are soon in a fit state of lunacy to be taken in by the next comer. It certainly appears that it is simply necessary for a man to *travel* with an alleged improvement to find ready sale for it; while the more honest who stay at home and attend to their legitimate business, and who succeeds in making a decided improvement, come in for a larger share of the epithet "humbug," than the dabster who makes his living by flooding the country with formulas he has selected from publications and in which he has made just sufficient change to disguise them. These sometimes get hold of a valuable improvement, but are wholly incapable of practicing it; yet they immediately start off on their tour of "*instruction*'—as they ere pleased to call it publicly—but which they chuckle over in private as a capital piece of finess—and peddle the "*patent right*"—if they have succeeded in cajolling the Commissioners out of one—or the "*secret*," for whathver they can get for it—gold, silver, notes of hand, watches, finger rings, lockets, cameras, and everything else they can induce the benighted photographer to part with as a consideration; and it is really surprising how often these "*instructors*" make dupes of the same individual; that notwithstanding the many worthless receipts and patents that have been palmed off upon photographers at very high prices, so many dupes can still be found. We are led to these remarks by a communication we published in our last, and we are not surprised at the resolve Mr Gage has made. Photographers, however, should learn to discriminate between the true and the false in these matters. They should not purchase any article, receipt, or formula designed for the improvement of their art without first entering into a minute examination of its merits, and ascertaining its applicability to their own circumstances, as well as into its originality and their own ability to practice it thoroughly. We have heretofore written sufficient on this subject, we think, to make our own views perfectly apparent; but that they are misunderstood by many, and that we are thought to vacilate between two opinions, we know; we will therefore explain in a very few words. We hold that every man who has given any of his time to the development of a *new* idea, and reduced it to successful practice, has a right to remuneration for the labor bestowed; but we repudiate the method that has obtained among photog-



GENERAL WILLIAM WALKER.

Negative by Webster Brothers.—H. H. Snelling, Print.

raphers to secure that remuneration, considering that means equally remunerative and much more equitable might be adopted. Every man who honestly creates, and who is convinced his creation is of value to others besides himself, will not hesitate to put his invention before the public. It is not necessary, in order to do this, to promulgate his secret; for there are men in every class of business who possess the entire confidence of their constituents, and who are looked up to as arbiter in all matters concerning their interests, and who also can be relied upon as confidants; to these men, therefore, every honest inventor will not hesitate to present his invention for approval, and on their decision rest his claims for remuneration. As such men are always well known in every community, an inventor has no excuse for not obtaining the stamp of their approval, and if he refuses to obtain this, photographers should be very careful of placing any reliance upon his statements. We have advocated, and still advocate, the free interchange among photographers of new discoveries in the Art, as the best means of its rapid elevation to perfection, and most noble in the discoverer; but this does not necessarily make us amenable to the charge of opposition to a compensative principle. But to return to our subject. That there are hundreds of dollars paid every year by photographers, for which they do not receive the slightest value, is too well known to require comment here, and it is to correct this evil—as one of the greatest drawbacks to the rapid progress of the Art that exists—is our duty. Now we will venture to say that in nineteen cases out of twenty of the alleged improvements and inventions in photography claimed to be original, and sold as such to our artists, we will furnish from previously published articles one precisely similar or analogous to it. The variations, if any, being of very little or no importance. Is there any better evidence of the bogus nature of the many "improvements" that are daily being *hawked* about the country, than that every means is resorted to to prevent the Photographic Journals from obtaining knowledge of their nature? Although we have hundreds of readers *some* one of whom is sure to fall victim to every photographic perigrinator; yet we scarcely ever hear of their operations until the mischief is half done. Why is this? The Photographic Journals are certainly the best source for the promulgation of these facts; and we for one will always be found willing to place any really valuable discovery before the community in its proper light, as well as to condemn those of a bogus nature. Our advice therefore to our readers, is; purchase no alleged improvement that is not first examined and criticised by us, and not even then until you have assured yourself of your ability to use it. We shall pursue this subject hereafter and review some, if not all, of the "improvements" which have been claimed and sold by speculators in this country.

— In our last issue we promised to give the appearance of each of the negatives we have used during the present year in illustrating our Journal, after printing our edition, with a view to ascertaining the best varnish used. Those who have sent us the following negatives will oblige us, therefore, by informing us what varnish was used on them. The portrait of the *Negress* retained its clearness and fineness to the last, and will still answer for an indefinite number of positives. The *Bachelor's Sunday Morning* remained clear, but blistered. *General Walker* changed to a reddish hue (probably on account of his recent return from Nicaragua). The *View on Broadway* became yellowish, and softened and blurred in the sun, but hardened again in the shade. The *Indian Chief* remained very clear. *Madame Ponisi* remained clear, but softened slightly blurred, and wore rapidly. *Margaret* changed to reddish yellow, softened and blurred. *Minnehaha Falls* remained perfectly clear, but very slightly softened. *Mormon Island* and *Gold Mine* did not change in the slightest degree. *Egeria* became slightly yellow. In *Columbia College* and *Powers' Group* there was no change. *Flora* became yelow and blistered. *Mr Dabbs* slightly softened. *Mr. Johnston* slightly yellowed, as did also *The Harpist*. *Mrs. Barry* remained clear but blistered some and wore rapidly. *Major Bradley* remained clear but printed only two hundred well; it began to bister very soon and wore rapidly, so that it was difficult to obtain the whole number required even in the imperfect state we were obliged to give them to our readers.

— The Process without Silver.—There are several persons engaged in selling formulas for printing positives without silver, claiming them as original; but they are mistaken, Professor Hunt having given them to the world as early as 1844, we think. They consist principally of citrate of iron—ferrosyanide of potassium, gallic and pyrogallic acid and silver. They give very good results but the positives are fugitive—the *high lights*, which are the life of a picture are entirely wanting; or, if produced at first, eventually darken. The *original* formulas can be found in our "Dictionary of the Phopographic Art," under articles, *Ammonio-citrate of iron* (p.7), *Amphitype* (p. 8), *Chromotype* (p. 45), *Chysotype* (p. 47); *Cyanotype* (p 67.) Also on pages 198 and 202 of vol. i. (1851), Photographic Art Journal. Other formulas producing similar results may be found on pages 75, 90 and 207, vol. i. Photographic Art Journal for 1851. Also on page 83 and 87 Dictionary of Photographic Art.

— Since our last we have had the pleasure of visits from Mr. Havens of Raleigh, N. C., Mr. Wearn of Newbury, S. C; Mr. Cook of Philadelphia; Mr. Whitney of Rochester; Mr. Barnard of Syracuse—Mr. Blessing of Texas—Mr. Constantine of Caraccas, S. A.; Mr. Benedict of Syracuse; Mr. Wood of Washington; Mr. Moulton of New Haven; Mr. Black and Mr. Cahill of Boston; Mr. Gurney of Natchez, Miss, and Mr. Davis of Montgomery, Ala.

— Mr. Wood showed us some beautiful photographs of the Capitol Extension at Washington, consisting of copies of drawings, statues, and of the Capitol at several stages of its enlargement. Excellent photographs of statuary can be taken by almost any photographer—but to give them the exquisite grace, and natural pose of the artist; exhibiting every line of beauty, and giving the full force of meaning possessed by the marble, requires the artist's skill. These pictures possess these qualities to a greater degree than any photographs we have yet seen. They even tell you the material of which the models were made. We have seen a few portraits of Turner, Moulton, Hesler, and Fredericks, in which we could tell the fabric of the drapery; and where other points of detail and position are equally good, these show the *true photographic* artist.

— Mr. Cahill showed us some excellent photographs, but we must give the preference to the ammonio-nitrate prints. Those taken by his *new developing* process, have too much the characteristics of the *amphitype* pictures described above.

— Mr. Barnard has succeeded in obtaining a method of taking photographic pictures on wood for engravers, which is the best we have yet seen, and is pronounced the best by Mr. Orr and other engravers, to whom all the processes heretofore introduced have been submitted. Mr. Barnard has disposed of his gallery at Syracuse to Mr. Lazierf, formerly of Picton, C. W., and intends devoting his time to this particular branch of photography.

— Mr. Gurney's visit is to obtain the most perfect method of making the *Hallotype*, the patent for which he has purchased. He expresses himself determined to make this style of picture equal to any artist. We feel confident that he will do it, and that he will excel in this as well as every other branch of the Photographic Art he has undertaken.

— J. C. Gray.—We answered your last letter and sent the photographs through the channel you indicated. In regard to your sky-light we have only to confirm your own views, as they are perfectly correct for the space and position at your command. You can, however, make it more available and easily managed by the use of screens of white cloth and blue paper. Place two pair of rollers under the glass at the top and bottom of the plane; the lower pair movable in grooves on each side of the light so as to be raised alternately or together, as may be required, to the side of the upper pair On one pair stretch a piece of white cloth and on the other blue tissue paper, both sufficiently large to completely cover the glass. When you have a *clear* atmosphere with *bright* sun, you can use the white screen—when the atmosphere is *yellow* and the sun bright use the blue screen; and when the day is cloudy remove both. Arrange the side light in the same manner. Also have two or three movable screens of the same material, hung in frames upon pivots, to enable you to reflect light from different angles upon the sitter from different points of the room. We cannot describe exactly the method of using these screens without diagrams; but we have no doubt your own talents will soon teach you how to manage them, as well as the great advantages they will give you in delineating the true character of your sitter. The positions in which they can be placed, relatively to the sitter in order to bring out prominent characteristics of expressions, or to soften harsh outlines, and unpleasing defects are so various and numerous, that it would require a large volume to describe all; but in practice they present themselves so readily and palpably to a thinking and artistic mind that there can be no difficulty in their use by such an artist. The large side screen and background are to be used as usual. These movable screens may be made from five to eight feet square. A mirror set in a frame in the same way, would be found occasionally useful also.

— A sad accident happened to Mr. A. A. Turner, of the firm of Cutting & Turner, Ambrotypists, on the afternoon of the 11th of August last, by which his eyesight was seriously endangered. He was engaged at their establishment, No. 10 Tremont row, and was opening a bottle of ammonia, which had been carelessly left standing in the sun, when its contents flew up and struck him in the face. Persons who were present applied acetic acid almost immediately. Dr. Stacy was called, and a carriage was procured in which he was taken to his home in Chelsea. He is in the care of Dr. Dix of this city. Both of his eyes are very badly injured. We are happy to learn, however, that the fears entertained at the time of permanent injury are not verified. He has nearly recovered. Photographers, we trust, will receive a lesson of caution from this incident.

— Mr. W. N. Faris, of Wheeling, desires us to say—"A thing both cheap and good for cameras, instead of glass in camera shields, is gutta percha made in one piece and cemented (by heat) to the wood. I find it preferable to anything else for various reasons. It may be put in shields that have had glass broken out—and even after the wood is partly destroyed by the nitrate solution, by varnishing over the place with gutta percha dissolved in chloroform, and then softening the corner piece it may be permanently fixed in its place."

— Mr. C. A. Johnson of Madison, Wis., has entirely recovered from his loss by the fire a few weeks ago, and inaugurates his success by an undertaking which evinces an enterprising spirit and which will, no doubt, repay him well; in, fact the commissions he has already received will ensure him against loss. The commissions are for sixty-five volumes, each to contain seventy-five photographic portraits of the pioneers of the West. We should like to see more of this kind of work done. Carefully executed volumes of interesting subjects would sell readily.

— We copy the following from the *Galena Advertiser*:—

This is denominated a utilitarian age, in which it is as difficult for fine arts to flourish as roses to bloom in Sahara. This is partly so—partly not so. We find few men devoting their lives to a laborious study of the fine arts, while thousands are engaged in producing useful inventions. And yet this spirit of invention has invaded the province of art, and having first filled the world with steam engines, is now beautifying the homes of the people. It is a mistake to suppose that inventive genius is solely confined to purposes usually deemed utilitarian. It does not only supply the place of manual labor, but it greatly assists the artist, and though it may be long before Raphael's paintings are equalled, the time will not be far distant, if it has not already come, when almost every house in the land can be supplied with portraits as admirable and truthful as Reynolds has produced. It is worthy of remark, in viewing the progress of science, that at the same time it multiplies the advantages of the people, and benefits the world generally, it detracts from the merits of individuals. The weakest soldier of to-day, with Sharpe's Rifle, may prove far more effective, in the matter of human slaughter, than were Achilles or the Black Prince, while the veriest coward, with Colt's Revolver, could more than cope with the bravest archer of Robin Hood's followers. Because—from these modern improvements resulting from a better acquaintance with the laws and hidden agencies of nature—such an exquisite skill is not necessarily evinced by the student of fine arts as was formerly essential, it is becoming somewhat fashionable to decry their works of art as wanting in merit. But is not a pictures as beautiful, as truthful, as worthy of admiration, if painted by the Sun and artist, as though it were the work of the artist alone? And should it not be a matter of congratulation, than otherwise, that one good artist is capable of producing a thousand first-class portraits by the aid of science, where otherwise he would be limited to scores?

We have been led into this train of reflection by an examination of a collection of photographs at the De Soto House, executed for our citizens by Mr. and Mrs. Fasset. Much skill, it is true, is neccessary to render these so perfect, and a highly cultivated artistic taste, also, to tint the portraits and adjust the lights and shadows to secure a natural, life-like expression; but one cannot look upon such a collection of superb works of art, remembering the comparative rapidity with which they are produced, without being impressed with a sense of the wonderful achievments of science, and a faith in its almost unbounded capabilities.

These pictures are portraits of many well-known gentlemen and ladies of Galena, and whatever their comparative merit, with regard to the works of the old masters, no one can gainsay their intrinsic worth. They are beautiful and natural, and we may safely say, superior as a whole to anything of the kind ever before seen in our city.

"Seeing is believing," and those who would examine these portraits must visit Mr. Fasset to-day, as this will be his reception day in this city. He will be found at the the De Soto House in room No. 194.

— Messrs. Davie & Francois having removed to Saratoga, receive the following tribute of praise from the two leading daily papers of that city:—

Van Dyck Gallery.—Through inadvertence we have neglected to notice this valuble addition to the places to be visited by the many strangers now sojourning with us. The citizens too, will find great pleasure in visiting this splendid Gallery of Art. Messrs. Davie & Francois are experienced artists, and worthy of encouragement by all lovers of the fine arts. The recommendation, in another column, is a sufficient guarrantee of their superiority as practical workmen and finished scholars of art.—*Post.*

We can heartily endorse the above. The "Van Dyck Gallery of Art" is well worth the attention of both citizens and strangers. Saratoga has never been able to boast more deserving artists than Messrs. Davie & Francois.

Happening into the "Gallery" the other day we were sensibly struck with the beauty and truthfulness of several portraits of distinguished citizens of Utica. We spent our boyhood in the "Central City," and the faces of Joshua A. Spencer, Theodore S. Faxton and John E. Hinman, were as vivid in our reccollection as if it had been but yesterday; and here we found them standing out from the canvas so life-like that it seemed they might almost speak. Time, it is true, had whitened their locks somewhat, and advancing years had left an impress upon their lineaments: but the faces of each were there as unmistakably as it is possible to transfer the living form to canvas. These portraits are from the hand of Mr. Francois, and we take pleasure in thus attesting to his skill and superiority as an artist.

— "Solar Camera."—The fault is not ours. Mr. Woodward promised to send us two negatives of his instrument with description and directions for use in time for September or October, but he has failed to do so. We consider the instrument well adapted to the purpose intended, as it gives better results than any thing heretofore offered to the photographer.

MAKING LIGHT OF PHOTOGRAPHY.

PHOTOGRAPHY IN A LOVE LIGHT.

AMONG the many pleasures to be derived from Photography, not the least is the pleasure that springs from Love. One of the loveliest of arts bases half its charms on Love. One of the most engaging of sciences appeals most strongly to those who are "engaged." I can imagine professional Photographists looking upon engaged couples with more speculation in their eyes than Macbeth saw in Banquo's ghost, and regarding affianced people as their best customers. I can fancy the soliloquies of these professional individuals when ladies and gentlemen come to sit to them for their portraits—"brooch or locket size." Those few words would tell tales of plighted vows, and twilight talk, and murmured nonsense, dearer far than all rational conversation. They would hint at the destination of the portraits—more particularly of the gentleman's; and the prospect of its some day being supplanted by the original. Who would not be a photograph "brooch or locket size," to lie pillowed by so fair a bosom—clasped to so warm and loving a heart!

Ask Jenny Jones what present—next to a plain gold ring—she should prefer receiving from Edward Morgan, with whom she has been "keeping company," and she will tell you that, of all things, she should dearly love to have his "daggerotype." Ask the Hon. Captain Blank, who went out with the Guards to the Crimea, what part of his baggage he set most store by, and he would tell you,—supposing that he ever breathed such a secret—that a small red morocco case, containing a Collodion portrait of the girl he left behind him, was valued by him above gold and precious stones. And yet, neither of these portraits would appear particularly bewitching to an uninterested spectator. Betsy Smith would see nothing in the first; and Lieutenant Bray (of the 199th Incompetents) would only look on the other, and drawl out "Aw—aw, gad!"

It must happen, that in photography, Love shall be more potent than Vanity, for the Camera speaks the truth, and Vanity cannot always bear to hear it spoken. What, besides Love, is it that gives the charm to that Photographic portrait, in which you and I can see no grace or beauty, and which we view with mingled feelings of disgust and derision? What is it that lends to that unearthly, sallow-complexioned, sour-visaged countenance that you and I see staring us in the face from the shiny Daguerreotype plate, or the Calotype paper,—what is it that lends to those dismal, dreary features an interest, which, in the eyes of some who look thereon, will call up hot scalding tears, and make their hearts beat with a quicker throb? What, besides Love?

You and I may be tempted to smile at those smudgy, bleared, and spotted Calotypes; but others see in them the shadows of dear ones, passed away but not forgotten, and the light of love is shed around them, and invests them with a grace and beauty not their own.

By the aid of Photography, the mother again gazes on her sailor-boy lost at sea. Again she sees his frank and noble face; she can almost hear his hearty, cheering voice. He is lost to her; and that Daguerreotype is all that she has to keep before her his never-to-be-forgotten features.

The widower holds before him the likeness of her who was his wife. It is a Calotype, and was but the work of an amateur; and yet, how he values it! Upon the wall hangs another portrait of her; it was painted by a skilful artist, but it has the artist's conventional face, his conventional attitude, his conventional background. How it sinks in interest before that little Calotype! In it the husband sees the living likeness of his wife. There are her features, transferred to the paper in a happy moment of magic; there are those tender eyes that turned to him in life and death; there are those lips that never spake an unloving word; there is that brow that was never clouded by doubt or distrust. She lives before him again; she is snatched once more from the tomb, and he is permitted to gaze upon her for a time. Amid the blinding tears of recollected love, he presses the portrait to his lips, and speaks to it with child-like affection. And yet it is but a Calotype!

A young girl in the full spring-tide of her beauty, but wan and pale with untimely sorrow, hangs sadly over a miniature—the Photograph of an officer. She was betrothed to him, and, was looking happily forward to the day when they should be united, when he was suddenly called upon to fight the battles of his country. He has fallen like a hero, and she will never look upon him again on this side the grave. Yet there, in that shadowy likeness, he stands before her. Once more can she drink—in the light of these eyes that are now glazed in death; once more can she gaze upon that manly form, that now, hacked and torn by Russian shot and sword, sleeps cold and stiff in death, in a trench before Sebastopol. God help her! for she needs his help. Her earthly idol is shattered in the dust, and the picture of its greatness is all that is before her.

Shadows of the dear departed, lost to us forever! the Camera gives you back to life, and bids you live in something more than memory.

PHOTOGRAPHY IN AN AMATEUR LIGHT.

Photography is, of all others, the science for amateurs. It is equally adapted for ladies and gentlemen, which cannot be said of the generality of sciences.

Take Geology, for instance. You don't find ladies—at least, not many young ones—going about with hammers, and tapping, like so many auctioneers, on tables of red-rock sandstone; or poking into tertiary stratas, or silurian formations; or chipping off bits of mountain limestone and mill-stone grit; or turning out of the lias and oolite Ichthyosauri and Plesiosauri, and Megalosauri, and Hylæosauri, and all sorts of sauris; and bringing home stones enough to set up a pavior in business. It is only gentlemen who do these things; it is only the harder sex who are thus stony-hearted; and the softer sex show no love for Geology, notwithstanding that Hood says, in reference to the science, "*Hammer* vincit omnia."

Then, again, with regard to Entomology, which, at first sight, might be regarded as a feminine-ology. I remember, once in Hampshire, going out with three unmarried entomological ladies, to sugar trees for butterflies. We started at the dead of night; we were armed with dark lanthorns and butterfly-nets; we penetrated into the very midst of the New Forest; and there we were, for hours—yes, for hours—sugaring trees! Need I say, that the maiden ladies were *old* maidens, and that their conduct was above suspicion? But could *young* maidens have done these these things? I don't think they could.

Then, there are some sciences, the mastery of which brings but little *eclat* either to the lady or gentleman amateur. For instance—if a gentleman takes up Chemistry, does it add to his attractions in the sight of womankind?—does it make him more popular with the young ladies of his acquaintance? Not a bit of it. If he comes to Mary Anne, and says, "My dearest love, congratulate me! I have discovered that the bismuth of oxygen will explode on contact with the hyper-sulphate of bromine!" does the dearest love do more than say "Indeed!" and open its dearest loves of eyes, and wonder what on earth it's Alfred is talking about? Don't young ladies, generally look upon amateur chemists as gentlemen who are perpetually perfumed with horrible essences; and blow themselves up over refractory mortars; and have a general aspect of scientific seediness spread over their clothes, linen, and person; and go about with clouded nails; and love to talk of Faraday;* and delight not in waltzing;

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* Unless my memory is treacherous, Macbeth said to Banquo "So foul a Faraday I have not seen." If so, it would perhaps prove that there was, even in that day, a distinguished Chemist of that name, who was celebrated for his chemical uncleanness.

and project experiments instead of pic-nics, and entertain their friends with laughing gas; and think that knocking you down by an electric shock is one of the finest jokes in the world?

And if the young *lady* should take up Chemistry as a scientific pursuit, it is all over with her! She must either end her days as a vestal virgin, or else, finish herself up with a Philosopher.

No. The only way in which your young lady amateur can take up Chemistry, is, when it has been married to Mr. Photography. When made part and parcel of that delightful art, what a different aspect does the stern science assume! Its abracadabra of mystical terms then becomes a pleasing jargon: its experiments are created solely for the production of positives and negatives. Instead of being scouted as the science of seediness, it is chattered about by blooming maidens, and made one of the topics of conversation dealt out by those offensive productions of society, "agreeable rattles." It is allowed to penetrate even the ball-room, and to be "ventilated" in the pauses of the *valse.*

You see, it is not the *complete* science of Chemistry that you are required to be up in, but only that fragment of it that pertains to your favorite pursuit You do not, as the vulgar say, "go the whole hog." but you content yourself with consulting "Hogg's 'Manual.'" You labor under no apprehension of being nick-named "the chemical young lady," for, if you were cross-examined in the science, you would probably be unable to say why, when you wash your paper with a cunningly-prepared solution of nitrate of silver, gallic acid, and distilled water, it should render that paper sensitive. You know that it does so; and you rest satisfied You can produce proper effects—by the aid of your manual; and you can talk about the chemical processes as though you fully understood them; and, pray, what need is there for more?

And yet, it would be occasionally advantageous to young ladies if they had as much real knowledge of the chemistry of Photography as their talk would lead you to believe. They might then, perchance, avoid the mishap of the beautiful and talented Miss Dash, who had taken up Calotyping, and had produced some very pretty specimens of her skill, but who was so careless of her nitrate of siver that she was not satisfied with staining her fair fingers and almond-shaped nails, but—a rudely inquisitive fly having probably settled upon her damask cheeks and celestial nose—she must even proceed to rub her face with her stained fingers. The natural consequences ensued. Black stains and spots, like to those which occasionally traverse the face of the sun, appeared on the sacred precincts of her countenance, and not all the Kalydor of Rowland could remove them. She looked like a half-washed Othello at some private theatricals.

It was the height of the Season, too, and the very day, of all others, when she wanted all her good looks to attend upon her at Lady Mayfair's *soiree dansante.* What was to be done? cyanogen soap was not invented: so, of course, she could not use it.

"I must take you to Squills, my dear," said her mamma; "he is a clever chemist, and may divise some means to drive away your black looks."

So the young lady put on her thickest veil, and leaning well back in the carriage, was driven to the chemist's shop, where Mr Squills speedily administered consolation to the fair sufferer in the shape of cyanide of potassium. And when the church-bells of London had proclaimed (by no means unanimously) that it wanted but one hour to mid-night, Miss Dash, in all her accustomed beauty, might have been seen a fair unit among the fashionable throng who were elbowing and squeezing their way up Lady Mayfair's staircase.

It is since the date of this young lady's mis(s)-adventure that cyanogen soap has been invented. If Mrs. Johnson's Soothing Syrup is "a real blessing to mothers"—a statement which we altogether discredit—much more might cyanogen soap be described as a real blessing to amateur Photographers. For it is chiefly by amateurs that it is needed. Your professor, who gets his living by the science, can juggle with his chemicals and never put a stain upon his fingers: or, indeed, if he does, he don't seem to care about the stain, but lets it remain there.

But, your dandy gentleman, who is not thoroughly *au fait*, at his work, and your enthusiastic young lady amateur, who, in her enthusiasm, has drabbled an splashed her nitrate of silver over her lily white hands, has to get those hands into presentible condition for the seven o'clock dinner, and, to her, a cake of cyanogen soap comes as acceptably as sunshine would have come the other day to a party of bedraggled revellers whom we saw setting out for a pic-nic in a pleasure-van—the sky of a leaden-color—the rain pouring in torrents—and a brass band (with the wet in their throats) playing the provokingly-suggestive, yet maddening strain of "Cheer, boys, cheer."

Occasionally, indeed, the young lady amateur will, by a freak of fancy, allow the stains to remain on her hands, and will call your attention to them, as you sit beside her at the dinner-table, or lounge with her in the little inner drawing-room, and will point to them proudly—just as an old Peninsular man would point out to you his wounds and scars. I have always remarked, however, that in cases of this kind the young ladies have hands that might have been stolen from the Medician Venus, and, that the black stains—like crows on a field of snow—only serve to set off the dazzling whiteness of the rest of the skin; serving them the same purpose as the patches did by the great grand mothers.

If any Hume-orous person had the curiosity, the skill, and the patience, to draw up statistics of amateur Photography, it would, most likely, be found that for every lady who stained her fingers at least ten gentlemen would be discovered. The ladies are naturally neater than the rougher sex; and I will venture to say that, if neat-handed Phyllis had been a Calotyper she would never have nitrate-of-silvered herself, but, her experiments ended, would have brought out her hands as stainless as her character.

It is not long since that I had the privilege to behold a gentleman amateur prepare his iodized paper. He came out of his darkened room. and mixed in a tea-cup a considerable dose of "the mixture as before:" we must not say in what the mixture consisted, for all your swell amateurs are mysterious on this point, and affect great secresy in the concoction of their exciting fluid. But whatever it may have been, nitrare of silver had entered largely into its composition; and there it was in the tea-cup.

Several of the amateur's children (he had his quiver full of them) were in the room; strictly were they cautioned not to touch the tea-cup; and, in order further to guard it, the amateur placed his hat over it. He then retired to his dark room, while his children, regarding the hat as a Bogey, sought relief in out-door play.

At this critical point, the footman entered to say that the farm-bailiff wanted to see the master directly: upon which urgent summons, the amateur, forgetting his caution to others, hastily snatched up his hat, and placed it upon his head. The contents of the tea-cup were overturned into the lining; and, as the amateur was not at first aware of the disaster. the developing fluid gradually ran down upon his head. It was bald!

The result was a skin skull-cap—"dark as Hudibras" (as we once heard a Mr. Malaprop say)—and the amateur well nigh scalped himself before he could prevail upon his poor bald head to resume its normal aspect.

PHOTOGRAPHY IN A ARISTOCRATIC LIGHT.

Lady Blanche Hymen (Lord Wynterley's daughter), assures me, that she considers Photography to be *par excellence* THE scientific amusement of the higher classes. And, I fully believe what her ladyship says.

For the present at any rate, Photography has the patronage of aristocratic—may we not add, Royal?—amateurs. It has not yet become *too* common; nor, indeed, is it likely to become so. *profanum vulgus* keep aloof from it; it is too expensive a pastime for the commonalty. And, whatever the progress of invention may do towards cheapening the apparatus required by the Photographer, yet, I am inclined to believe that, at present, it is only people with long purses, who can afford to take up Calotyping as an amusement. And, more than this, it is only people with plenty of spare time on their hands who can afford to turn their attention to it. And, I therefore think that Lady Blanche was right, when she pronounced Photography to be a scientific pastime peculiar to the higher classes; since it seems to specially address itself to those who have the time and money to spend upon it.

It is all very well for my Lord, or the Squire, who are occasionally *ennuied* for the lack of amusement, to seek, in Calotyping, relief from their magisterial, landlordial, and other duties. It is all very well for people who think the purchase of "a mahogany folding camera, of best construction; with double combination Achromatic lens, mounted in brass front, with rackwork adjustment, sliding front, suitable for views 10in. by 8in, and portraits 8½ in. by 6½in."—it is all very well for persons who think the purchase of such a piece of furniture as this, a mere fleabite; and can give their twenty-one guineas for it, with no more trouble to themselves, than the trouble it costs them to fill up the cheque.

It is all very well for those people to take up Calotyping, who can buy any number of gallons of nitrate of silver, without having to pinch for it afterwards, or to squeeze it out of the butcher's bill. It is all very well for such as can afford it, to devote themselves to so attractive and amusing science as Photography. But the case is widely different, when applied to such people as Tom Styles the ingenious mechanic, or Mr. Gibus the chemical-minded hatter, or poor old Pounce the attorney's clerk—all of whom, most probably, have to support wives and numerous pledges of affection, and cannot afford to gratify the bent of their inclinations either by the first expenditure in apparatus, or in the continual expense incurred by experimentalising. If the first outlay was all that was required, Photography, would not then fall so heavily upon a light purse; but the science demands of its votaries an expensive—and, often, a tedious—apprenticeship, before it dubs them Masters of the Art.

Again; it is all very well that Photography should be undertaken by those amateurs who have time to follow up their experiments,—who can pack up their camera (snugly prepared for travelling in its leather sling case), and can drive off with it to the desired spot; who can send it on by their servants, and ride to the place to meet it, and find all prepared for them. This is all very well, and very fine, and very encouraging.

But to those, who have to pack up their cameras and their tripod stands,—and carry them, as best they may,—and walk with them on their shoulders under a blazing July sun, the aspect of photographic affairs becomes decidedly altered. And, when the difficulties of securing the negatives are safely accomplished, when they reach home (very likely), the house is so full, that they cannot get a room (much more, a dark room) to themselves. Even their "Studys" may not be preserved inviolate; and the children get in, and disarrange the papers, and open the drawers that ought to be kept shut, and spoil their frocks with the chemicals, and play the very Bear with the apparatus in general. And then the Housemaid comes, and makes confusion worse confounded, by attempting to "put things tidy." And, when the photographers want dishes and cold water all in a hurry, they can't get them: and so, their positives don't turn out well, and they get disheartened.

But, your true aristocratic amateur, who can afford both time and money, delights in having a Photographic room fitted up for his own delectation, wherein he can pursue his Calotyping without let or hindrance. To the windows, he will have an ingenious system of shutters, so as to enable him to exclude daylight, or admit it, at a moment's notice; and he will also have a screen of trebled yellow calico, to make that "dim, religious light," which photographers occasionally love. He will have lamps almost as wonderful as Aladdin's; glass spirit lamps, brass spirit lamps, camphine lamps, argand lamps, lanters with yellow glass shades, gas jets with metal chimney and gauze,—and, if it were needed, he could doubtless come out, like Vauxhall on a gala night with "ten thousand additional lamps."

He will have ornamental jars, which will turn out to be filters and holders of distilled water—much purer and sweeter than that of the "silvery Thames." He will have bowls and pans of white china, and dishes of porcelain, cool in look and refreshing to the eye. His chemical solutions will be arranged on shelves, ready to be handled at the word of command. His fixing solutions, and his developing solutions for negatives and positives will all be in lipped bottles. He will have zinc trays, and washing pans, and all the latest fashions in baths,—glass baths, porcelain baths, gutta percha baths.

Close at hand he will have quires of bibulous paper, and all the luxuries of his art;—soft camel's-hair brushes,—glass filtering funnels, ribbed inside,—glass syringes to take up definite quantities of solutions,—glass dippers,—German beaker glasses, and plenty of brass pins. To the shelves around, will be pinned sheets of paper for drying; and there will be dark draws to recieve them when they are iodized, and made sensitive. As the arisrocratic amateur will be fond of experiments, he will try the rival merits of the various Photographic papers, and will keep sheets of each:—Turner's, Whatman's, Bland and Long's, Canson *freres*, Towgood's, Sandford's, Nash's, Papier Joseph,—on all of which he will operate in their turn, according to the requirements of the particular process he may have taken in hand. He will also treat himself to the French reversing frames with their hinged backs, to allow him to see the progress of the picture; and he will procure any new invention that he sees advertised in the 'Times,' or 'Notes and Queries,' or the 'Photographic Journal,' or any other paper that is a "medium" for Photographers. Within his reach, and hung upon their separate hooks, will be an abundant supply of clean linen rags, and pieces of wash leather; and there will be a towel-horse laden with a snowy burden of cloths.

On one side of the room, there will be an oaken chest, marked with the owner's name, and painted with the terrific legend "*Glass—with care—this side uppermost.*" This is orr aristocratic amateur's travelling box. If you will open the lid, you will see that its space is economised in a way that would make the proprietors of emigrant vessel pale with envy. You will perceive, that everything lies in as snug a compass as possible; that the iodides, and nitrates, and hypo-sulphites, and glacial acetic and gallic acids and all the other solutions, are not allowed to interfere with each other; but, you will observe, that there are little nests for the individual bottles, which, like the little birds, may "in their little nests agree," without fighting and breaking each other's heads; and, that everything—even to the scales and weights—is laid in order, and can be produced whenever their Caliph master shall clap his hands for their appearance. You will also find, that the oblong mahogany box called the Camera, will, at a touch and a pull, fall to pieces, like a pantomine scene, and will fold up flat: and, that its three lanky legs will unscrew and consent to commodate themselves—like ominibus passengers, to the limited dimensensions of the box in which they are compelled to travel.

Being thus provided, whenever our aristocratic amateur goes by rail or road to visit his other aristocratic friends, the Calotype chest forms, as a matter-of course, a part of his luggage. He reaches Whatdyecallit Castle a full hour before dinner; the Calotype chest is open,—the Camera mounted,—the three spidery legs produced to their full length; and, by the time that the first bell has wrung, our amateur has secured a very good Garden-front, and North-wing

This gives him favor in the eyes of them that sit at meat.

PHOTOGRAPHY IN A NEGATIVE LIGHT.

There are some things that Photography can do, and some things that it cannot.

Photography cannot make clouds—except with the aid of indian-ink or iodide of potassium; and, even then, the clouds are an imposition, though a buckle, or a Sir William Newton may execute them. It cannot give atmospheric effects; it cannot (as yet, at least) give the colors of nature; it cannot give the proper force of blues, bright reds, and yellows it cannot properly get over the matter of greens—it cannot say with Mrs. Bagnet, in 'Bleak House,' "them greens is off my mind!" but, above all, Photography cannot fudge.

This is the greatest glory of the science: this is the cause of its rivalry with artists When Mr. Ruskin (in his Lectures') wishes to speak in the highest terms of his friend the Pre-Raphaelites, he says, their crowning glory is that their enemies have accused them of painting from photographs. Photographs don't fudge; the Pre-Raphaelites don't fudge; all others artists (except Turner!) *do* fudge—that is the subtance of Mr. Ruskin's argument. And, certainly, there is much truth in the statement.

The fact is, the public like fudge, and artists (who are but men, after all) have pandered to the public taste, and have doctored Dame Nature after the most approved mannerisms. It is sad to think what indignities that respectable old lady has had to bear at their hands. Now, she has the lines of her face all drawn out of place; now, she has all her limbs put out. At one time, a mass of rocks are dragged in front of her to make a foreground; at another time, parts of her are conveyed bodily into other parts, or else, are taken away altogether. On one occasion she is so dressed up that even her most intimate friends fail to recognise her; on another occasion she is stripped of all her graceful coverings, and made to appear before the public in a most improper condition. But Photography treats Nature with that minute care and attention which is her due.

It is recorded of old Astley (of the Amphitheatre) that he once violently harangued his scene-painter for representing(in a scene of a military trophy) a drum with only one head. "But, Sir," remonstrated the scene-painter, "according to the rules of perspective, you could only see one head to the drum." "What have I to do with perspective, said the unlettered proprietor: "I pays you for painting and not for perspective. Every drum in my establishment has got two heads, and with two heads it shall be painted!"

Old Astley was wrong, and his scene-painter was quite right in ingeniously covering the one end of the drum with the drapery of a trumpet, so that when he was asked "Where's the other end of the drum," he could reply, "Behind that drapery." But, had not old Astley the true Photographic, Pre-Raphaelite, No-fudge principle strong within him? To *his* eyes the drum had two ends; it must, therefore, be so represented on the canvas whether it looked right or wrong, well or ill; to depict it otherwise was (to him) fudge.

But, paradoxical as it may seem to say so—though the Camera cannot fudge, it cannot always appear to be truthful. Take that portrait of Miss Brownjones, and you will find her hands to be of Brobdignagian dimensions. How was this? She had neglected to place them on a line with her chin, and, consequently, they were brought too near to the Camera.

Look also at this landscape. That tree, to the right, is out of all proportion; and the lines in that house, to the left, converge in a way not seen in the originals. These parts were "out of focus," and the camera could not manage them. The French seem to get over this difficulty better than we do, if we may judge from the splendid specimens of the Calotyped exteriors of their finest edifices.

The distortion of the Photographic picture arises from the lens of the Camera being of a convex shape, in order that the object might be diminished to the size of the plate, and that the rays of light might be duly concentrated. As a natural consequence of this convex shape of the lens, those parts of the sitter that come nearest to the apex of the lens will be enlarged: so that even Daniel Lambert (if he could have sat for his Daguerreotype,) would have come forth on the plate with a double allowance of fat beneath his waistcoat.

The "Negative" in Photography may be considered as that state of the science in which, if you assert a thing to be white it affirms it to be black, and if you say it is black it immediately points out to you that it is white. The "Negative," in fact, represents all the lights to be darks,and *vice versa*. Thus when our friend Brown gazes at his reflexion in the photographer's mirror, he perceives very clearly that his hair and his coat are of a darker tint than his face, and that his shirt-front and collar are far whiter and lighter than either. And yet, when Brown comes to behold his face in the negative—he sees himself—though not as in the glass—darkly; and he perceives himself to be a grey-headed nigger, with light shadows to his face, wearing a white dress-coat, with a black shirt and collar; and Brown forwith imagines that he has been magically transfered to the Black Prince, or, at any rate, into Uncle Tom.

Nor is Brown in any way soothed when the Photographer observes to him—with a self-satisfied smirk which Brown by no means admires—"You are coming out famously, Sir! You are developing most beautifully!" Brown doesn't know what the man means by "developing," but, having heard something about the theory of Development in connection with Dr. Newman's name, he loftily replies, "*I'm* no Puseyite, Sir!" hissing out that terrible epithet with all the fervor of an Exeter-hall theologian. And the poor little Photographer open his eyes in wonder at the absence of lucidity in Brown's reply, and the black look that accompanies his negative.

PHOTOGRAPHY IN A POSITIVE LIGHT.

There are some things that Photography *can* do. Imprimis, Photography can tell the truth; although, as I have said, it cannot always *appear* to be truthful. But, then, we know that truth itself does not always look like the truth.

When Mrs. Mooney wished to decorate the Frontispiece to her "Travels in Cloudland," with a representation of her own frontispiece, did she patronise Photography? Not a bit of it. She knew very well that it would not flatter her; that it would not tone down her aquiline nose, or enlarge her elephantine eye, or omit the wart on her cheek. So she went to Mr Hayter—(like Dr. Johnson, she could thenceforth say, "Sir, I like a good Hayter!")—and he took off her head in his usual facinating manner. It is true that she paid for the pretty sketch some twenty-nine guineas more than she would have given for the Photograph; but, is not beauty dirt cheap at the price? What woman is so far superior to personal vanity as to prefer sending out her face to the public with all its warts and defects, when she is able to go before the world with a pleasing countenance?

Do you think that, when I go to call on old Lady Gorgon in Medusa square, and beg of her ladyship that she will be so obliging as to show me her portrait,—do you think that she exhibits to me her Daguerreotype by Beard? ("*By* Beard," did I say? rather, ought I not to say "*with* Beard?" for it represents the poor old lady with as many hairs on her chin, as a billy-goat.) Do you imagine for an instant, that she would show me this shiny portrait, which (and no blame to Mr. Beard) makes all her plainness plainer, and brings out her defects in the strongest possible light; or that she would take me into her dining-room, and point to a certain piece of canvas on which Mr. Frank Grant has depicted in his most facinating style, a most fascinating female figure, in whose gracefully aristocratic beauty there dimly lurks a resemblance to the gaunt Lady Gorgon.

Can you, my dear lady readers, can you lay your hands upon your stays—I mean upon your hearts—and say, that you would prefer to be represented by Beard and Claudet to Hayter and Grant? Could you say this, and not blush with the conviction that you were telling an abomnable fib? Photography feels quite "positive" that you could not.

Nitrate of silver is the chief agent in the Potitive process. Silver, indeed, is a chief agent in most processes where anything positive is desired. It can mitigate the miseries of the Custom-house,—secure the politeness of railway officials and box-keepers, gain for us the inspection of the mysterious treasures of show-houses, and show-places, both sacred and profane,—and, in short, is the Open Sesame which every band of Forty Thieves has made its watch-word.

The Positive process is like the process of unfortunate generals, and unsuccessful tradesmen, for it is nothing else but a succession of reverses. But, singular to say, the Photographer regards these reverses as so many successes, and looks for a reverse as anxiously and eagerly as a poor author looks for a cheque. In Photography, as well as in life, you may be pretty sure that when you meet with a reverse, you will be still further screwed down, and will have your sensitive side brought in contact with everything that looks black and gloomy. And, yet, if you will allow the light to shine through the dark, you will find, that, in your Positive reverse, there has taken place a decided action which has changed to brightness all your shades of gloom.

Æsop tells us, in a fable, of a certain man who bought an Uncle Tom servant, and endeavored to scrub him white, under the impression that the blackness of his skin arose from the neglect of his former master; and Æsop further tells us that these insane sanitary measures were altogether unsuccessful. But, to put a positive black into a bath, is a very different thing to putting into a bath a black Positive,—equally as much as a horse-chesnut is altogether dissimilar to a chesnut horse. And, when you put your black Positive into your bath, and let him be there—it may be a quarter of an hour—it may be five or six hours,—and scrub him well with hyposulphite, and then wash him "repeatually" (as Mrs. Gamp would say),—and then leave him to soak in clean water for some couple of hours,—and then carefully put him in a warm place to dry (we will say nothing about the ironing, as that might mangle him),—why, then, you will find that your black Positive, unlike your positive black, has really lost color and has had his countenance reduced to the desired tint.

If the fabulous sanitarian, mentioned by Æsop, had lived in these later times, he would have undoubtedly been a Photographer; for then his passion for cleanliness might have been carried out to its fullest extent, and rewarded with a more immediate success then attended him in the ablutions of his black servant. Perhaps, in no science, is cleanliness so necessary as in the delightful science of Photography, where, if you fail in one step, you fail short of the goal, and where you must be a perfect Pharisee in your washings if you wish to attain excellence. I will leave it to others to say if there is any significance in the fact, that the same Victorian era that gave birth to Photography, also produced Bath and wash-houses.

There is one very positive thing about Photography, and that is, the power that the Camera positively possesses, of receiving any amount of images. Here, the Camera can even go beyond the great naval hero, who, just before his crowning fight, cried "Westminster Abbey or Victory!" for it can gain a victory over Westminster Abbey. For, before any images can be received by the Abbey, you must—as was seen in the case of Cambell's statue—pay down a larger sum of money than, perhaps, the original image cost. But, the Camera receives an image at a much cheaper rate than the Chapter

Which ends *this* Chapter.

From the Jour. of the Phot. Soc.

PREPARATION OF IODIDE OF ALUMINIUM.

Wolverhampton, Aug. 7, 1857.

To the Editor of the Photographic Journal.

Sir,—In the last month's Journal there appeared a letter on the "Salts of Aluminium in Collodion," in which Mr. Draper recommended the iodide and bromide to be used. As the ordinary processes are rather troublesome, I subjoin a mode by which iodide of aluminium may be made with ease and quickness.

The process of making hydriodic acid by passing sulphuretted hydrogen through finely powdered iodine diffused in water (which is the one generally used) is attended with some trouble, from the agglomeration of the precipitated sulphur, it forming a network which encloses the iodine, and witholds it from the action of the sulphuretted hydrogen: this inconvenience is severely felt in working on the large scale.

The way that I propose is, to subject iodide of lead and sesquisulphate of alumina to gentle ebullition for some time in a large quantity of water; one part of iodide of lead will require about two parts of commercial sesquisulphate of alumina. The liquor is then filtered from the residual matter, and sulphuretted hydrogen is allowed to pass through it for a few seconds; it is again filtered and evaporated to dryness; the iodide of aluminium may then be dissolved out with alcohol, or after treating with sulphuretted hydrogen, iodide of barium may be carefully added as long as any precipitate is formed; this, separated from the sulphate of baryta and evaporated to dryness, is sufficiently pure for ordinary purposes: it contains a small quantity of iodide of potassium, from ferrocyanide of potassium being used in the purification of the sesquisulphate of alumina; this latter salt is now manufactured in large quantities for the calico printers, it being used by some of them in prefereuce to alum

Perhaps a still better method is to decompose the sesquisulphate of alumina with iodide of barium; this salt at present is a rather expensive one, but I am now trying some experiments on the making of it direct from witherite, or native carbonate of baryta, by heating it to a red heat, with an excess of iron filings, in an iron retort; when cool it is only necessary to add iodine and water, and boil for some time, to produce complete decomposition; in this way it may ultimately be made as cheaply as any iodide that is now used. C. R. C. Tichborne.

From the Liverpool Photographic Journal.

A NEWLY DISCOVERED STEREOSCOPIC EFFECT.

BY A. CLAUDET, ESQ., F.R.S.

The following is an abstract, by the author, of a paper recently read before the Royal Society, and which is entitled

"ON THE PHENOMENON OF RELIEF OF THE IMAGE FORMED ON THE GROUND-GLASS OF THE CAMERA OBSCURA."

Having observed that the image formed on the ground glass of the camera obscura appears as much in relief as the natural object when seen with both eyes, I have endeavored to discover the cause of that phenomenon; and the result of my experiments and researches has disclosed the singular and unexpected fact, that, although only one image *seems* depicted on the ground-glass, each eye really perceives a different image, and that, in reality, two distinct images exist on the ground-glass, one visible only to the right eye, the other visible only to the left. That seen by the right eye is the representation of the object refracted by the left side of the lens, and that seen by the left eye is the representation of the object refracted by the right side of the lens; consequently, these two images, which present two different perspectives, gives a stereoscopic perception, as when we look through the stereoscope at two images of different perspectives

It appears that all the different images refracted separately by every part of the lens, are individually only visible on the line of their refraction where it corresponds with the optic axis, and that, while we examine the image on the ground-glass, if the head be moved, we lose the perception of all the rays which are not corresponding with the optic axis, and have only the perception of those which, according to the position of the eyes, gradually happen to coincide with the optic axis. So that, when we look precisely at the middle of the ground-glass, the two eyes being equally distant from the centre, the right eye sees only the rays refracted from the left of the lens, and the left eye only those refracted from the right of the lens. If the head be now moved horizontally, so as to deviate about 6° from the centre on the right or on the left, in the first position, the right eye sees no image, and the left eye sees the image which was seen previously by the right eye, while in the second position, the inverse takes place: of course, in both cases, there cannot exist any stereoscopic illusion.

When the image of a solid object produced by the entire aperture of the lens is examined, if the focus be taken at the nearest point of the solid, we perceive, on looking at the centre with both eyes, that the image is stereoscopic, and as soon as one eye is closed, the illusion of relief disappears instantly. The stereoscopic effect is beautifully brought out by the image of a group of trees; and when experimenting in an operating-room, it is rendered very conspicuous if the image of an object having several planes very distinct, such as the *focimeter*, be taken. If, without altering the focus, the same image with the pseudoscope, the effect is pseudoscopic; but if the focus has been set on the most distant plane of the focimeter, the effect is pseudoscopic, and it becomes stereoscopic in looking with the pseudoscope. The image loses its relief when it is produced by the centre of the lens only; the stereoscopic and pseudoscopic effects are therefore as much less apparent as the aperture of the lens has been more reduced, and they are the more evident if the image be produced by two apertures on both extremities of the horizontal diameter of the lens. This method of conducting the experiments presents the most decided manifestation of the entire phenomenon.

But it is a curious fact that if the image be received on transparent paper instead of ground-glass, it does not in any case present the slightest illusion in relief. The surface of the paper has the property of preserving to both eyes the same intensity of image, from whatever direction the rays are refracted on that surface, and at whatever angle the eyes recede from the centre to examine the image. In fact, all the various images refracted through every part of the lens, and coinciding on the surface of the paper is that, through the surface of the ground-glass, which is composed of innumerable molecules of the greatest transparency, but deprived of their original parallels by the operation of grinding (yet acting as lenses or prisms disposed at various angles, the rays refracted by the various parts of the lens continue their course in straight lines while passing through these transparent molecules, and are visible only when they coincide with the optic axis. Each molecule of the paper, becoming luminous, sends new rays in all directions; and, from whatever direction the paper is looked at, all the images appear superposed. So that, each eye seeing the two perspectives mingled, the process of convergence cannot take place, and no stereoscopic effect can consequently be produced.

I have ascertained these facts by several experiments, the most decisive of which consists in placing before one of the marginal openings of the lens a blue glass, and a yellow glass before the other. The object of these colored glasses is to give on the ground-glass two images, each of the color of the glass through which it is refracted. The result is two images superposed on the ground glass, one yellow and the other blue, forming only one image of a grey tint, being the mixture of yellow and blue when viewed with both eyes at an equal distance from the centre. But when the eyes are closed alternately, the images appears yellow and blue. This proves evidently that each eye sees only the rays which, after having been refracted by any part of the lens, and continuing their course in a direct line throughout the ground-glass, coinciding with the optic axis, while all the other rays are invisible.

The consideration of these very singular facts has led me to think that it would be possible to construct a new stereoscope, in which the two eyes, viewing a single image, could see it in perfect relief—such single image being composed of two images of different perspectives superposed, one visible only to the right eye, and the other to the left. This could be easily done by refracting a stereoscope slide on a ground-glass through two semi-lenses, separated enough to make the right picture of the slide coincide with the left picture at the focus of the semi-lenses. The whole arrangement may be easily understood, for we have only to suppose that we look through a ground-glass placed before an ordinary stereoscope, at the distance of the focus of its semi-lenses, the slide being strongly lighted, and the eyes seeing no other light than that of the picture on the ground-glass. The whole arrangement is, in fact, nothing more than a camera having had its lens cut into two parts, and the two halves sufficiently separated to produce at the focus the coincidence of the two opposite sides of the stereoscopic slide placed before the camera.

From the Liverpool Photographic Journal.

INVESTIGATION OF PYROGALLIC ACID.

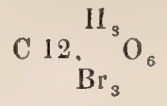
BY M. A. ROSING

M. Anton Rosing has carried out this investigation under the eye of M. Dumas, in the Laboratory of the Faculty of Sciences of Paris. We propose to give those parts of the paper which may most interest our readers.

Perfectly pure pyrogallic acid has no reaction upon litmus paper, but the commercial acid usually has an acid reaction due to the presence of foreign bodies. It cannot be sublimed without alteration; a part becomes decomposed and produces metagallic acid; this has prevented the determination of the density of the vapor. Dry pyrogallic acid undergoes no change under the influence of the air; on the other hand its solution is rather rapidly altered, acquiring a darker color and finally depositing a brown amorphous substance. This decomposition must not be confounded with that which pyrogallic acid undergoes under the influence of alkalies, for the author has convinced himself that it takes place in air washed by sulphuric acid: it may here be observed that a few drops of hydrochloric acid prevent any coloration of solutions of pyrogallic acid.

Concentrated and dilute dydrochloric acid do not react upon pyrogallic acid either in the cold or at a boiling heat. Pyrogallic acid dissolves in monohydrated sulphuric acid; if the solution be heated it becomes black; with fuming sulphuric acid pyrogallic acid gives a black solution; fuming nitric acid reacts briskly upon pyrogallic acid, and eventually, on evaporation, crystals of oxalic acid are obtained.

Chlorine acts energetically upon pyrogallic acid, and iodine appears to attack it at a high temperature, but the action of bromine is of most interest. When anhydrous bromine is poured upon the crystals, a brisk action takes place, with evolution of hydrobromic acid gas; if the excess of bromine be driven off, there remains a heavy yellowish mass, which, when heated upon platinum-foil, takes fire, burns with a flame margined with green, and leaves much carbon. The analysis corresponds with the formula



$$C\ 12,\ \begin{array}{c}H_3\\O_6\\Br_3\end{array}$$

This product is nearly insoluble in cold water, when boiled with water it is partially dissolved and the rest is decomposed: it is soluble in alcohol and ether. The solution is brown, and possesses a very distinct acid reaction; the alcoholic solution when evaporated spontaneously, furnishes magnificent large crystals of a light brown color, which appear to be oblique rhomboidal prisms; they contain two equivs. of water. Muriatic and sulphuric acids do not appear to act upon this brominated product, but concentrated nitric acid acts upon it strongly, and evolves reddish vapors; with ammonia a solution of the product acquires a very intense red color, which becomes brown by the action of the air: potash and soda produce an analogous reaction. But the most remarkable effect is produced by protosulphate of iron, under the action of which the brominated substance acquires a very rich blue color, comparable to Saxony blue or ammoniacal oxide of copper The sensibility of this reaction is such that the substance might replace ferrocyanide of potassium for detecting protoxide of iron. The blue liquid remains for a long time unaltered in the air, but at length its color becomes black. In the absence of air, for example in a current of hydrogen, dry ammoniacal gas has no action upon dry pyrogallic acid; the acid remains unaltered.

With an excess of ammonia in contact with the air, a solution of pyrogallic acid becomes of an extremely dark brown color; spontaneous evaporation leaves a black amorphous substance of a resinous appearance. This product possesses the following properties:—It evolves ammonia when heated with slaked lime, and also but with difficulty with a solution of potash; it dissolves in water and alcohol with a brown color *so intense and pure* that it might be employed as sepia. The solution is neutral to litmus paper, and gives precipitates with a great many metallic salts, &c., such as acetate of lead, sulphate of copper, chloride of manganese, sulphate of iron, bichromate of potash, and limewater. The constitution of this substance has not been made out.

Numerous experiments on etherification with pyrogallic acid gave negative results. Contrary to what has been said, pyrogallic acid does not set free carbonic acid from the carbonates of lime, ammonia, &c., nor from bicarbonates; but under the influence of the air a solution of pyrogallic acid, mixed with an alkaline carbonate, slowly becomes brown.

Pyrogallic acid reduces, not only the noble metals from their solutions, but also copper in the saccharimetric fluid of Frommherz, towards which it behaves like glucose; it combines with different metallic oxides, forming compounds, the powerful affinity of which for the oxygen of the air renders their preparation very difficult.

It also combines with certain organic substances such as gelatine and caseine.

From the author's experiments, many of which may be regarded as preliminary, he deduces as a general conclusion that *pyrogallic acid is not a true acid;* of all known bodies it most closely approaches *orcine*. This the author shews by formulæ, representing respectively the production of orcine from orsellic acid, and pyrogallic acid (or as it might be called pyrogalline or simply *galline*), from gallic acid.

At the same time pyrogallic acid presents some characters analogous to those of some pyrogenous acids, especially of pyromeconic acid, and it would not be impossible to unite these bodies in a single group. Pyromeconic acid, pyroracemic acid, comenic acid, and itaconic acid are all pyrogenous acids, the mode of production of which is analogous to that of pyrogallic acid; they have several properties in common with the latter, and amongst others that of striking a red color with the persalts of iron.

This valuable contribution to the chemical history of pyrogallic acid will be found in full in the *Comtes Rendus* of the French Academy of Sciences for June 1st. Our abstract is made from the *Chemical Gazette*, but has been revised by the aid of the original memoir.

SOCIETE FRANCAISE DE PHOTOGRAPHIE.

From the August number of the *Bulletin de la Societe Francaise de Photographie*, we learn that the last meeting for the season was held on the 16th July, M Durieu in the chair.

M. Violin presented, through M. Girard, a paper

ON A NEW PROCESS FOR PRINTING POSITIVES ON COLLODIONIZED GELATINED PAPER.

The following advantages are obtained: —1st. The positives are equal in delicacy to the negatives from which they are copied. 2. The strength of the proof is so little affected by drying that it is possible to judge of it with certainty when in the hyposulphite bath. 3. Contrary to the results on ordinary paper the print preserves on drying that charm which it possesses when immersed in water: varnishes and encaustics, often dangerous, are henceforth superfluous. 4. Metallic spots arising from the paper do not occur. 5. The image being entirely in the collodion, and separated from the paper by a coating of gelatine, appears to have all the conditions necessary to its complete stability. M. Girard exhibited a great number of impressions taken by M Violin, which were attentively examined by the society.

M. Durieu asked if the red tones observable in the prints were inherent to the process.

M. Violin replied that he had simply fixed those with fresh hyposulphite of soda; but it was easy to color them by the salts of gold.

The following is the process:—

Into a bottle containing

Ether..	20 cubic centimetres.*
Alcohol................	20 " "

Drop gradually a saturated solution of salamoniac, until a flocculent precipitate is produced; shake well and filter; add this liquid to a collodion thus prepared:—

Ether..................	100 cubic centimetres.
Alcohol................	20 " "
Pyroxyline..............	$2\frac{1}{2}$ grammes.†

Pour this mixture upon a glass plate, and immerse in water containing two per cent. of salt, until all greasiness disappears. While in this bath take a sheet of paper gelatined by a solution containing four per cent. of gelatine and two per cent. of sal ammoniæ, and make it adhere to the film by M. Bayard's method of manipulation.‡ Remove the whole from the bath and allow to dry. To use this paper remove it from the glass by means of a bath of distilled water, then blot off, by paper kept specially for this purpose, and place the sheet, still slightly damp, upon the nitrate bath in the ordinary manner. Remove and blot in another portion of blotting-paper, and leave to dry. The paper dries quickly and may be used within half an hour. Copy and fix in the usual manner.

The paper may be kept in a portfolio after removal from the glass; but it will in that case be necessary to immerse it in distilled water for some minutes, so as to moisten it previously to its exposure on the nitrate bath.

M. Tillard communicated the latest particulars respecting his

NEW WAX PAPER PROCESS,

which is highly spoken of by M. Lespiault. The negative obtained by it are very vigorous, well defined, close in texture, and free from granulation. The picture developes well in gallic acid, the whites keeping very clean and the blacks possessing great intensity, all the results promised having been realized. The preservation of translucency in the negative is astonishing, and has not been equalled in any other process. M. Tillard's method is simple and easily put into practice. It is believed that it will become popular. The process is as follows:—

Oil of turpentine..............	2000 grammes.
White wax....................	100 "

Melt the wax in the turpentine in a water bath; allow to stand twelve hours, then filter. Add to the filtrate one, or perhaps better, two per cent. of iodine, when combination will take place with effervescence. Add to this ten per cent. of cold pressed castor oil. The paper passed through a bath of this becomes transparent, acquires the firmness of parchment, and does not stain by long immersion in the gallic acid. The paper may be at once made sensitive, but as the exposure in sunshine must be five or six minutes, it is desirable to submit it to a second operation by which the exposure in the camera with a lens of about thirty inches focal length may not exceed three minutes, or even in full sunshine, *one minute*.

Here is the formula:—

Water, or better, milk serum....	1200 grammes
Iodide of potassium..	24 "
Bromide of potassium..........	6 "
Albumen (of about 10 beaten eggs)........	340 "

As soon as the iodized turpentined-wax-paper (*papier terebenthino-cire iadure*) is perfectly dry, immerse it in the above bath. The sheets may be placed one upon the other, avoiding air-bubbles. Fifteen minutes immersion is sufficient, but they may remain longer. The paper is then hung up, as in the first operation, to dry. A piece of blotting-paper must be attached to the bottom of each seat to facilitate the drying.

The sensitive bath is to be thus made:—

Nitrate of silver...............	20 grammes.
Nitrate of zinc................	10 "

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* The cubic centimetre and the gramme of water agree in bulk. 32 c.c. equal 1 fluid ounce, or, more exactly, 777 grs. equal 50 c.c.

† The gramme $15\frac{1}{2}$ grains.

‡ We have received this too late to refer at present to M. Bayard's process.—Ed. L. & M. P. J.

Citric acid(or acetic)	10 grammes.
Filtered rain water*	500 "

The sensitive bath should be prepared two or three days beforehand The paper is here to be left for about four minutes, then wash in two waters. If the bath is used for paper having the double preparation kaolin must be used. [(?) to discolorize.]

This is the formula for the developing bath:

Saturated solution of gallic acid....	50 grammes.
Rain water [(?) distilled].........	50 "

Add to this five or six drops of the above described nitrate bath, some of which is kept purposely for this use. Be very careful not to add too much silver, for the coarseness of the image is occasioned by the use of too much aceto-nitrate, as also by the too great strength of the gallic acid solution. The beauty of the picture must not be sacrificed to haste in the development. In support of this view two pictures were exhibited, one developed with but little silver, the other with a stronger dose. This process yields perfectly opaque blacks with perfectly clean shadows. The papers prepared by this process keep good for a long time both before and after their being made sensitive. They are perfectly white, the presence of iodide not being observable.

M. Tillard next made mention of a sort of tracing paper called "vegetable paper," which has been used successfully. The image penetrates it completely, and the blacks given by it, when viewed by transmitted light, are very fine. It was introduced by M. Romain.

It is to be prepared as follows:—

Milk serum....................	1500 grammes.
Iodide of potassium............	50 "
Cyanide of potassium..........	1 "
Camphor, a small piece.	

The addition of camphor *preserves the bath*, which otherwise would soon spoil. The sensitive bath is the same as for the turpentined-wax-paper. In developing the image add to the gallic acid bath a few drops of saturated solution of acetate of lime. The exposure in sunshine is from one to three minutes as with the preceding paper. This vegetable paper has the double advantage of not staining and of preserving its strength throughout all the manipulations. A negative by this process was also sent.

M. Bayle Mouillard thought that the castor oil was in excess, and that the paper would remain greasy, but M Tillard adheres to his proportions.

[*Apropos* of the greasiness of castor oil, we, six or seven years ago, made a negative transparent with castor oil, using the warmth of a fire to make it penetrate. We then wiped off the excess of oil, and rubbed the negative with *flour* and a piece of flannel. The negative is still good, and not at all greasy.—Ed. L. & M. P. J]

M. de la Blanchere exhibited a photographic tent which could be set up in ten minutes and taken down in five It weighed about eight pounds Two persons could work beneath it at one time. It is well adapted for the practice of wet collodion.†

M. Millet, on a former occasion, presented for the consideration of the Society, a mode of mounting the double object glass of the camera. A sub-committee, consisting of MM. Darien, Silberman, and Bertsch, was appointed to examine into the utility and novelty of the arrangement. A favorable report was now read. A great advantage of the method was the ease with which the double glass could be so disposed as to use part of it as a single combination. The placing of a diaphragm between the lenses was also discussed, and it was observed that neither M. Millet nor M. Tamin could claim priority, for M. Victor Chevalier had used that particular arrangement in 1846, and as long ago as 1840 M. Buron, by the advice of M. Fortier, adopted a similar mode of construction. M. Tamin had popularized the thing by being the first to throw into commerce a great number of such combinations, and those at a cheap rate and easy of management.

After the reception and reading of some further communications of less pressing interest, and the appointment of a sub-committee to examine into the merits of a new head-rest and a new copying frame, the general meetings of the Society were adjourned until the 16th of October next.

From the Jour. of the Phot. Soc.

ON THE MANUFACTURE OF COLLODION.‡

BY EDWARD ASH HADOW, ESQ.

Part II.—*Iodized Collodion and Nitrate Bath*

"In my former paper I confined myself to the subject of simple collodion, endeavoring to point out the precautions that are necessary in order to obtain a highly fluid solution, capable of giving a film, tough and transparent, without being deficient in photographic qualities. I have now a few remarks to offer on the modes of iodizing or rendering the film capable of becoming sensitive, by the addition of soluble iodide; those that have been recommended are chiefly the iodides of potassium, ammonium, cadmium and zinc; of these the three last have the great advantage of being readily soluble in any collodion, and may therefore be added at once to the solution of gun-cotton; but iodide of potassium requires a little water, and even then, if added to collodion without having been previously dissolved in some of the alcohol, will be found to dissolve but very slowly. In preparing collodion with this salt, four grains were dissolved in three drachms of strong alcohol, and æther was added to make up the ounce: I found that the first two and a half drachms of æther begun to precipitate the iodide, and after the addition of the five drachms required, a dense deposit had formed, which was not redissolved until twelve drops of water had been added. This I merely mention to show that there must be a little water in the mixture, although in using ordinary æther and alcohol this might not be perceived. Before comparing collodion prepared with different iodides, it appeared probable that those of potassium and ammonium would produce greater sensitiveness than those of zinc and cadmium; for this reason, that the nitrates of ammonia and potash, which are produced together with iodide of silver, on immersing films prepared with the two first iodides in the nitrate bath, are perfectly neutral, while the nitrates of zinc and cadmium which result when collodions containing those metals are used, have a *feebly acid* reaction on litmus paper, and thus by their presence in the film, might, like weak acids, retard the action of light; in actual experiment, however, I did not find this to be the case, for when carefully and similarly prepared with equivalent quantities of each iodide, and used while colorless, the collodions appear similar in sensitiveness, gradations of tints, and all other respects. In a few days, however, they begin to differ in consequence of partial decomposition and liberation of free iodine, which occurs more readily with the iodides of ammonium and zinc than with potassium, while the iodide of cadmium, if I may conclude from one sample I have by me, remains, *perfectly* colorless for any period of time, retaining its original sensitiveness, the other varieties having lost theirs in proportion to the color they have acquired. The iodide of cadmium, in addition to this valuable property of giving a stable collodion, is likewise extremely soluble, without being deliquescent, and being beautifully crystalline, is not liable to adulterations or impurities, and therefore well deserves to be generally tried In order to preserve, or as it is stated, to improve the sensitiveness of collodion, some persons recommend the addition of a little ammonia; this, however, appears very unadvisable, since it *necessitates* the use of an acid bath; and although it may render the collodion less liable to change, it produces a contrary effect on the bath, since every plate immersed tends to neutralize a portion of acid, and at length rendering it neutral or even alkaline, and brings about exactly the phenomena described by Mr. Fenton. With ordinary collodion, however, even when quite colorless, the bath may always be used *perfectly* neutral, permitting the developing solution to be left on twice or three times as long as is necessary, without the slightest fogging, provided that the nitrate of silver is pure and the bath has not acquired fogging propensities by prolonged use. No pure alkaline iodide can ever render the bath alkaline; the only effect on immersing a plate covered with collodion is to remove a portion of silver and substitute an equivalent quantity of ammonium, potassium, &c., so that a portion of nitrate of silver is merely replaced by a portion of nitrate of potash or ammonia, which being neutral, cannot in this respect affect the state of the bath; with the iodides of the metals, such as iron, zinc, cadmium or arsenic, the bath, on the contrary, will soon become apparently acid from the presence of the nitrates of those metals which, as before stated, redden litmus. In all cases, excepting when free ammonia has been added to the collodion, the silver solution has a tendency to become acid rather than alkaline, both from the frequent presence of free iodine in the collodion, which sets free nitric acid in the bath, and also from the slow formation of acetic acid from the alcohol and æther washed out from the plates that have been immersed. The effect of free iodine in the collodion is not however chemically the same as that of nitric acid in the bath; for nitrate of silver is, like all other nitrates, a nitrate of the oxide of silver; when, therefore, free iodine acts on the silver solution it liberates oxygen as well as nitric acid, the result being that an *iodate* as well as an iodide of silver is formed; the effect of the former should therefore be ascertained in order to clearly understand the action of brown collodion. When a great deal of iodine has been set free by long keeping, making the collodion very dark colored and insensitive, I found that the addition of a little oil of cloves, in the proportion of four drops to each ounce, causes a surprising increase of sensitiveness, and some time ago I always used such a mixture for the production of positives on glass, from a belief that a better color and more perfect gradation of tints were obtained in this way than by any other method. At this time, however, my pictures were constantly liable to solarize (or darkening of those parts that ought to be whitish) when using the ordinary collodion and developing by pyrogallic and nitric acids; but lately, while seeking for difficulties in order to discover their causes, this tendency to solarization quite disappeared, although using the simplest materials; neither was I able to produce it by taking objects in the most unfavorable conditions of light and shade, nor by any addition to the collodion. Accidentally trying the effect of a minute quantity of nitrate of silver in the nitrate bath, I obtained it again in perfection, and was able at once to understand how it occurred formerly, for at that time I always made use of nitrate of silver that had been strongly fused, and in which a portion of nitrite had thus been formed, while latterly only the crystallized salt had been employed. The effect of oil of cloves and iodine in the collodion was to counteract that of the nitrate, but when pure crystallized nitrate is used no such additions are required. It is remarkable, however, that although oil of cloves greatly increases the sensitiveness when brown collodion is used, no such effect is produced by its addition to colorless collodion with an acid bath, proving that free iodine in the former is not exactly similar to nitric acid in the latter. To compensate for the bad effects of the nitrite on the color of positives, it has the important property of increasing the sensitiveness and rapidity of the surface, allowing pictures to be taken instantaneously with far less light than is usually required, and it is thus particularly suited to negatives, in which the color by reflected light is of no importance, while it adds to the opacity of the dark parts of the picture. Its effects on the color of positives is chiefly seen when pyrogallic is used for developing, and becomes more marked as the picture dries, when the tint of the reduced silver becomes *darker* and of a greenish color in the most exposed parts, while with *pure* nitrate, as the moisture evaporates, it becomes *lighter*, and the details appear more distinctly represented in various shades of *one* color. As this nitrite is formed when the nitrate is overheated, it generally exists in 'lunar caustic' to a greater or less extent; but as this substance, from a want of crystalline form, is easily and frequently adulterated, it is much better to add the nitrite to a solution of the crystallized nitrate in quantities less than half a grain to an ounce of a thirty-five grain solution, for too large an amount causes a fogging of the clear parts of the picture. It is easily obtained by fusing pretty strongly a mixture of equal parts of nitre and nitrate of silver; the fused mass being dissolved in a small quantity of boiling water and the solution left to cool; the nitrite of silver then crystallizes out in the shape of long, slender needles, which may be removed, and pressed in blotting paper to dry them; by recrystallization they are obtained quite pure. To this or some similar compound, Mr. Thomas appears to allude in his paper on the silver bath, when he says that he has observed some peculiarities while using a solution containing a *sub-oxide*, although he does not state what they are.

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* (?) Distilled water in smoky towns.—Ed. L. & M. P. J.

† This is important for hitherto the chief of the finest pictures have been obtained by *wet collodion*, as the pictures by Bisson, Freres, Fenton, Bedford, and others testify.—Ed. L. & M. P. J.

‡ Continued from p, 318, vol. x no. x.

"To return, however, to the subject of collodion that has become discolored by keeping, there is no mode of restoring its sensitiveness superior to that recommended by Mr. Crookes, by the addition to the collodion of *pure* metallic silver, which, by simply forming iodide of silver soluble in the remaining iodide, rapidly effects its decoloration without difficulty or uncertainty. This plan I adopted a long time ago, but soon after abandoned from finding that collodion thus treated became opaque on drying, in consequence, as I imagined, of some action on the gun-cotton in solution; the real cause appears to have been that the silver used was not pure, being precipitated from the nitrate by metallic copper, and possibly containing a mixture of oxide, for I find that in collodion treated with silver prepared in this way, a portion of acetic æther is formed, a very little of which added to the best collodion is capable of destroying its tenacity and rendering it opaque on drying; with pure silver no such effect is produced, nor even with that precipitated by mixing solutions of nitrate of silver with sulphate of iron, which, though not quite pure, answers very well. Metallic iron was another substance that I tried, with the intention, not merely of restoring the original sensitiveness, but of increasing it by the formation of iodide of iron; instead of this it had the curious effect of bringing the collodion to a state of jelly, rendering it useless. Some persons, however, so far from wishing to decolorize collodion, add a quantity of iodine to it from the first, under the impression that it is necessary in order to protect the clear parts of the picture. With these I can fully sympathise, as I had the same idea at one time; for when the subject was first published in the *Chemist*, in 1851, no mention was made as to the time of exposure, and being accustomed to the paper process, I concluded the collodion film required the same length of time, and in consequence wholly failed in obtaining anything more than universal blackening of the surface. I therefore put the collodion by for a month or more, when finding it had become dark brown, it occurred to me to try it again, and I obtained an excellant result, using the same length of exposure; and by examination having ascertained that the color was owing to free iodine, I used for a long while to add it in large quantity to fresh collodion. A great many substances were then tried for the purpose of increasing its sensitiveness, of which by far the most successful were the essential oils as before mentioned, which reduced the time of exposure from half a minute to five or ten seconds, and formed the most rapid process I knew, until to my great surprise the pure colorless collodion proved the most rapid of all; from this I conclude that many persons condemn a collodion as incapable of producing clear pictures, in consequence of exposing too long in the camera.

"That there are, however, other causes of fogging, cannot be doubted, some having excited considerable attention lately; but as Mr. Hardwich has entered into the subject at some length, I will only add my testimony to the fact that the nitrate of silver bath does, by continued use, acquire a tendency to fog, apparently from the presence of some organic matter, for on distilling off the water from a bath of this kind, the distilled liquid used to dissolve fresh nitrate of silver gives some fogginess, while the nitrate remaining behind in the retort, evaporated at a *gentle* heat and redissolved, gave much more; a portion also strongly heated was found to give off carbonic acid, showing that the nitrate was contaminated with a portion of organic matter, though too small in quantity for its nature to be ascertained. I am, however, by no means sure that it is not owing to acetate of silver, of which a very little added to a *neutral* bath will cause complete blackening of a plate under the action of the developing fluid, even though it has not been exposed to light at all. For the mode of getting rid of the impurity, whatever it may be, I refer to Mr Hardwich's paper.

"The strength of the solution of nitrate of silver ought to be proportional to the quantity of iodide in the collodion, at least so far that it cannot be *diminished* beyond a certain point (depending on the collodion used) without a great loss of sensitiveness, or, what is exactly similar, if we use a bath of a certain strength, the quantity of iodide cannot be *increased* to any amount, but must be limited by the proportion of nitrate of silver: with a thirty-five grain solution of the latter, four grains of iodide to the ounce of collodion answers very well; but if the quantity be increased to six grains, there is a great loss of sensitiveness and intensity, the effect being similar to that arising from an insufficient amount of alcohol in the collodion, in consequence of the iodide of silver being deposited superficially, or even falling off the surface into the silver bath. The mistake of over-iodizing the collodion is generally committed with the view to obain greater opacity of the reduced silver, apparently from an idea that the iodide is only reduced, while in fact a large portion of the reduced silver is derived from the nitrate, so that a very little iodide in the film is sufficient to give intense negatives. For this purpose the collodion should be colorless, or nearly so, or at least, if colored, it must not be owing to free iodine, (which is ascertained by allowing a drop to evaporate on a piece of starch or a crumb of bread, and then moistening with water; a trace of iodine is detected by the black color resulting;) the bath should likewise be neutral, or nearly so, and the developing fluid should contain no more acetic or tartaric acid than is sufficient to prevent blackening of clear parts; after the pyrogallic solution has apparently done its utmost, the intensity may be further increased by pouring on a fresh portion, mixed with some of the silver solution, which immediately adds to the opacity of the negative, a fresh deposit taking place on the parts already reduced. By the use of the nitrite as before mentioned, still greater opacity may be obtained together with the utmost rapidity; at the same time there is none of that violent contrast of light and shade which appears to result from the addition of iodide of iron, as an accelerating agent, to the collodion. I believe that salts of iron have not as yet been used for developing negatives, in consequence of the want of opacity in the reduced parts. I find, however, that the proto-acetate of lead and sulphate of iron, is capable of producing intense negatives, resembling in all respects those obtained by pyrogallic acid, while it has the advantage in point of economy; but I have not as yet made a sufficient number of experiments to enable me to determine the strength of the solution best suited to the purpose; it need not be very great, somewhat less than eighteen grains to the ounce, for if it contain so much as this, it is liable to produce universal blackening when first prepared, but in a few days, when a portion of peracetate has formed, it answers very well. My object in endeavoring to find a substitute for pyrogallic among the iron compounds, is not to add to the number of developing fluids and the perplexity of a beginner, where pyrogallic acid can be obtained pure, and is found to answer perfectly, for in that case it is preferable to anything else; but as this may not always be, it is useful sometimes to know of a substitute that can be prepared wherever green vitriol and sugar of lead can be found, for, even when impure, these substances are very easily purified by recrystallizing from a solution in boiling water; which is not the case with pyrogallic acid, to which noxious ingredients might easily be added, accidentally or intentionally, from which it would puzzle a chemist to free it.

"By knowing the quantity of iodide contained in a collodion, it is easy to ascertain the amount of silver that the bath loses for each ounce, and thus to know exactly how much nitrate should be added to maintain the same strength; thus, with a collodion containing four grains of iodide of ammonium to the ounce, each ounce expended removes four and seven-tenths grains of nitrate of silver, but with four grains of iodide of potassium the quantity of nitrate consumed is only four and one-tenth grains. In the first case nitrate of ammonia, in the second, nitrate of potash, accumulates in similar proportions, but the ammonia salt has the advantage of being easily dissipated on evaporating the bath and gently fusing, leaving only salts of silver behind, while the nitrate of potash is quite fixed.

"In conclusion, I think we have much reason to congratulate ourselves on the great degree of perfection that photography has already attained, considering how very little we know about the instantaneous change produced by light, and of which we should have remained quite unconscious but for the wonderful discovery of the art of developing; and seeing how incapable we are of predicting beforehand the action of any material, we may consider ouselves indebted to good fortune, as well as to the perseverance of the discoverers, for the success of many of the processes we now possess; for although the first trial of a material arises generally from some theory in the mind of the experimenter, the result very frequently differs entirely from his expectations: thus, in the application of collodion as a substitute for albumen by Mr Archer, with the intention, as he states, of obtaining a film equally transparent, but more tough and elastic, the great difference in sensitiveness between the two materials could never have been anticipated, and is now difficult to account for, while the great sensibility of the materials used in the former process, in a state of purity, and which seems to be diminished by almost every addition, cannot fail to surprise and gratify any one who has experimented much on the subject. With regard to rapidity and sharpness of definition, thanks to the invaluable assistance of the maker of lenses, the process seems almost to have reached perfection; the points to which attention should be now principally directed appear to be an addition to, or substitute for, the iodide of silver, giving a suface equally sensitive to all colors; and likewise some means of developing positives which shall combine perfect whiteness and delicacy of shading with entire freedom from metallic appearance by reflected light, which alone is wanting to make them surpass Daguerreotypes."

From the Liverpool and Photographic Journal.

VARNISH FOR COLLODION NEGATIVES.

BY M BOIVIN.

The collodion surface being easily scratched, some means must necessarily be adopted to preserve it from accident. To this end many substances have been proposed, but not with a due consideration of the qualities required. A varnish for our purpose should be—1st, So fluid as not to give too much translucency to the negative, or we loose vigor, and yet it must be thick enough to preserve effectually the film. 2nd, It should be hard enough to bear reiterated rubbing. 3rd, It must be soft at a moderate temperature. Copal varnish, diluted with benzole, has been commonly employed; it spreads so easily that almost every one has adopted it. But how many negatives have been spoiled by its resinification after a certain time, and by its softening in the sun during the printing process, causing the adhesion of the paper to the negative! Knowing these difficulties to exist, M. Boivin communicated to the French Society his mode of procedure, not as claiming to have made a discovery, but simply to furnish an improvement on the every day practice.

Into 100 grammes of ordinary alcohol pour eight or ten parts of oil of lavender, add to this five or six grammes of gum lac; dissolve in a water bath and filter. In a well stoppered bottle place five grammes of powdered amber, mixed with broken glass to divide it, and thirty grammes of chloroform; leave the mixture to digest for several days, shaking it occasionally. Then at length take one part of this liquid and two parts of the lac solution, mix them, let them incorporate, and then filter. Your varnish is made. In order to coat the film, slightly warm the glass by a spirit lamp or by the fire; when it has reached a temperature which is not unpleasant to the hand, pour on rapidly the varnish, beginning at one of the upper corners, drain off the excess into a bottle, and place the plate in a vertical position to dry. Then heat again to obtain lustre, and all is accomplished.

To recapitulate, its advantages are,

1st.—It perfectly protects the film without increasing, sensibly, its thickness.

2nd.—It does not soften in the sun, and does not diminish the vigor of the image.

3rd.—It so protects the surface that the negatives may be kept in a portfolio, or a box without grooves.

For the Photographic & Fine Art Journal.

BALTIMORE GALLERIES.

Friend Snelling,—I promised to give you a full account of the Exhibition of Photographs and Ambrotypes, at the Maryland Institute Fair this year. Well there is plenty of material to go upon. First, Mr. P. L. Perkins has a grand display, better than last year, and the arrangement of his pictures are more tasteful. He has life sized photographs painted in oil, some eight or ten; cabinet pictures also. Mr. Shaw who has been operating at this establishment, is a good workman and fully understands his business. Mr. P. has made a display at this fair which will reflect credit on him as a photographist. The whole plate and double whole plate pictures need only to be seen to be admired, both in tone and position

Mr. H. Whitehurst has his position next to Mr. P., and he may be said to make rather the best display. Mr. Hugh O'Niel is deserving of nearly all the credit as the operator of Mr. W.'s gallery. He has a full length photograph taken by Mr. Woodward's Solar Camera, that in tone of color is equal to a life-sized carefully finished mezzo-tinted engraving; so perfect is the whole picture that it is the admiration of all who see it. Mr. O'Niel displays many whole and double whole plate pictures, both plain and untouched. Those that are untouched excel any pictures I have ever seen. In sharpness and tone, they are perfect specimens of Photographic Art.

Mr. Israel is next that attracts our eye; he has not been sleeping, for his display proves plainly that he is an operator of great merit, and for taste and style of position, Mr. I. is to be highly commended. His double whole pictures of the Durand Opera Troupe in character, are the great attraction of the whole collection of pictures. Nearly all of his pictures are retouched with India ink and have a very beautiful finish. His Ambrotypes have a rich color and clearness in them that is rarely to be seen. Mr. I.'s group of pictures are pleasing, and attract great crowds nightly.

Next to Mr. Israel is Mr. Perkins, brother to the above, he exhibits nothing but ambrotypes, and some of them are very beautiful; one of a lady showing the background of the battle monument in Baltimore, is a fine specimen. His display although small, has great merit.

Mr. Elisha Lee exhibits some of his photographic canvas and mill boards, showing the print on the canvas. This canvas is sure to succeed from the fact that it is made so cheap and so good. I was shown yesterday a head printed on this canvas equal to the finest paper.

To go into a lengthy criticism on the pictures would consume too much time, and perhaps I might bear down too hard upon the operators without accomplishing any good; but with their leave I will simply make a few allusions to these pictures without wishing to detract from any of their bright lustre which has been gained by hard raps. First, Mr. P. L. Perkins has got a great many good pictures and a great many bad ones. His ambrotypes have always been considered good by all good judges; his plain photographs have been flat and had a leaden appearance, but now they have lost all of that crude hardness and are improving; some of his photographs, double whole plate, are equal to any we ever saw. His life-size photographs are fine but badly colored, and the likenesses are oftentimes lost Artists too often lose sight of the likeness to make the picture smooth. Hereafter Mr. P. will not only produce better pictures in plain photographs, but he will have better oil portraits.

Mr J. H. Whitehurst has the most varied collection in the Fair. His oil painted photographs are fine; there is a brilliancy of effect in them which need to be looked at but a short distance to render them almost flesh. His water colored pictures are done with great neatness. The backgrounds are very bad, there being an attempt to make them fancy—but all is lost. The plain photographs are fine beyond description, both the double whole and full size plates without any touching of India ink. His ambrotypes are very clear and sharp. Mr. O'Niel has labored hard to acquire the high position he now does in the photographic art.

Col. John R Johnson has painted many of the oil pictures of J. H Whitehurst's. He is now painting for three or four of the galleries, and with the many orders he has for himself and the different galleries, he is kept busy nearly all the time. Col. J. has his studio in Carroll Hall corner Calvert and Baltimore street, where a visit to him sometimes will pay all who go to see his many portraits.

Mr. Israel, who exhibits next to Mr. Whitehurst, makes a grand and imposing exhibition of his many photographs and ambrotypes; his photographs are all nearly touched with India ink, but show off to a fine effect. His ambrotypes are good; his photographs colored in oil are finely painted but bad in color, and the likeness is not perfect; his artist fails more on the life size heads than the cabinet.

Mr. Dan. Stiltz has opened a new photograph and ambrotype gallery on the corner of North and Baltimore streets. Mr. S. is an old operator and his pictures has great depth of tone. Mr. S. has been noted for producing fine expressions and good positives.

Mr. B F. Hawkes has taken the old gallery formerly occupied by Whitehurst.

I had almost forgot to mention the many pictures exhibited at the fair taken by Woodward's Solar Camera. This instrument in the hands of a careful operator can produce the finest pictures in the world. Mr. W. has many orders for these instruments. Their success is wonderful. Mr. W. showed me some large pictures by the solar camera of full length and half length figures that were superior to the finest engraving. Mr. Nichols is at present operating with Mr. Woodward.

Mr. Whitehurst is shortly to open his new Gallery, and I learn it will be one of the most complete establishments in the Union.

Mr. Dan. Benden formerly of Richmond, Va., is sojourning in the city; having sold his establishment in Richmond, will probably take up his abode here.

Mr. Pollock was rather offended at my saying in my last article, that what he had lost in not being able to fulfill engagements for want of help, he would now make up by having Mr. O'Neil. Always when I give displeasure I am willing to make corrections; I merely took Mr. Pollock's word for the above. And as Mr. O'Niel did not conclude to take the engagement offered by Mr. P I cheerfully make that correction; Mr. O'Niel still continues at Mr. Whitehurst's gallery at Washington.

Mr. Davis has been doing a very fair share of the ambrotype business, his gallery in Baltimore street below North.

Mr. Wisong has an enlarged stock of photographic chemicals. Also a large assortment of artists materials.

I hope to be in Cincinnati next week, and shall drop you a line from there.

Yours truly, J. R. J.

From the Liverpool Photographic Journal.

THEORY OF THE DAGUERREOTYPE PROCESS, &c.

BY A. CLAUDET, ESQ., F.R.S.

M. Claudet has, from time to time, kindly furnished us with various interesting papers on photography, prepared by him for the Royal Society and other scientific bodies. We propose to-day, and on future occasions, to give a summary of his views regarding the "Theory of some of the Principal Phenomena of Photography in the Daguerreotype Process." The following questions are asked:—

1. What is the action of light on the sensitive coating?
2. How does the mercurial vapor produce the Daguerreotype image?
3. Which are the particular rays of light that impart to the chemical surface the affinity for mercury?
4. What is the cause of the difference in achromatic lenses between the visual and photogenic foci? Why do they constantly vary?
5. What are the means of measuring the photogenic rays, and of finding the true focus at which they produce the image?

In answer to the first question, M. Claudet observes that he has discovered, that the decomposition of the chemical surface of the Daguerreotype plate, by the action of certain rays of light, produces on that surface a white precipitate insoluble in the hyposulphite of soda, which, when examined by the microscope, has the appearance of crystals reflecting light, and which, when seen by the naked eye, cause the appearance of a positive Daguerreotype image. This fact had not been observed before. The opinion of Daguerre himself, and other writers was, that the action of light on the iodide of silver had only the effect of darkening the surface, and consequently of producing a negative image But it escaped them that under the darkened iodide of silver another action was going on, which prolonged exposure to the light and the fixing by hyposulphite of soda can disclose. This unexpected fact is proved by obtaining, by the action of light alone, and without mercury, images having the same appearance as those developed under mercurial vapor. This direct and immediate effect of light is certainly remarkable, but the Daguerreotype process is not founded on the principle here indicated, as will be evident from a consideration of the slowness of its action. Long before light can produce the white precipitate above alluded to, a wonderful action has taken place, by which the vapor of mercury is caused to attach itself to the chemical surface of the plate, in quantities varying with the intensity or extent of that action. The daguerreotype image results from this action, which is the most beautiful feature of Daguerre's discovery. Analysis of the surface discloses the presence of mercury, and it is probable that this metal amalgamates with particles of silver reduced from the iodide by the action of light. Upon this opinion of M. Claudet's we must be allowed to remark, that the finding of mercury upon the plate does not prove that light liberates the iodine from the silver. A molecular change (as M. Claudet himself later observes) could be capable of causing the adhesion of the mercury, the iodine still remaining, or only removed by the subsequent action of the fixing liquid. This is still an obscure point. M. Claudet goes on to say, that it is probable that light exerts a two-fold action on iodide of silver, according to whether it is combined with chlorine or bromine, or not so combined. In the one case the iodide is decomposed, and the silver set free is precipitated upon the surface in the form of a white powder or small crystals; in the other, where the action begins much sooner, the parts affected by light have been simply endowed with an affinity for mercurial vapor. By means of a specially devised instrument it has been ascertained that the pure light of the sun performs, in about two or three seconds, the decomposition of the bromo-iodide of silver, which produces the white precipitate; while the same intensity of light determines the affinity of the same plate for mercurial vapor in the wonderfully short space or about 1-1000th of a second; so that the affinity for mercury is imparted by a proportion of light 3000 times less than that which produces the decomposition manifested by white pulverulent or crystalline precipitate. For this reason it is difficult to suppose that the two actions are the same. Long before light can affect the decomposition of the surface it imparts to the sensitive coating an affinity for mercurial vapor; and the result is the formation of the Daguerreotype image.

M. Claudet next discusses the particular properties of the differently colored rays in relation to the Daguerreotype plate. An account of this discussion will occupy us in the following number.

(*To be continued.*)

From the London Art Journal.

TINTORETTO AT VENICE, AND MR. RUSKIN.*

During a recent sojourn at Venice, it very soon became one of the prime objects of our gondoliering rambles to find out the more important pictures by Tintoretto, and several obscure out-of-the-way churches, but rarely visited, did we penetrate for that purpose. Mr. Ruskin was, of course, our principal guide, and, indeed, partly our moving power in these little urban voyages of discovery. With much admiration and profit had we read more than once his eloquent elucidations of the marvellously varied and profound observation and exquisite truthfulness of our own Turner; and now we exceedingly wished to avail ourselves of the present opportunity of testing the value of that which may be called his second grand discovery (whether real or imaginary), namely, the unrivalled depth of imagination and peerless general power of Tintoretto. We were keenly desirous of verifying with our own eyes those astonishing descriptions of his by comparing them face to face with the pictures described; and, especially, we wished to satisfy ourselves of the clear, unmistakeable existence and pictorial value of those singular conceptions of incidents, or motives, which he regards as supreme masterpieces of imaginative art: and so, with many extracts from his chapter on "Imagination Penetrative," and appendix to "The Stones of Venice," neatly written out in the very van and front of our note-book, we proceeded through the inquiry, the results of which may perhaps be not uninteresting at the present time, or wholly useless in aiding to determine the question thus raised with regard to Tintoretto's proper rank among the great sons of Art. In such topics much that is advanced is, no doubt, to be received as mere matter of individual taste or opinion, which does not prove or settle anything; but in this case it especially happens that Mr. Ruskin's admiration is chiefly founded on certain ideas or incidents in Tintoretto's works, the existence and the merit of which *on the grounds set forth by him*, are susceptible of distinct affirmation or denial, and decisive controversy; and it is solely from accuracy with regard to these demonstrable points that what we are about to put forward will derive any value, so far as Mr. Ruskin's opinions are concerned. However, it is by no means our intention to limit ourselves within his footsteps; and we are not without hope of making the subject additionally attractive by such an account of our own unbiassed impressions of this extraordinary painter, as may—without, we trust, passing the bounds of accuracy and due moderation—tend in some degree to interest the imagination of those who have not visited Venice, and re-kindle in a pleasant and welcome manner the memory of those who have. With this latter object in view, it may be as well to set out with a few very brief observations on the early career and peculiar characteristics of the painter himself.

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* 1. "Modern Painters," by John Ruskin.
2. "The Stones of Venice," by John Ruskin.
3. Ridolfi, "Le maraviglie dell' arte; ovvero le vite degli illustri pittori Veneti e dello stato."
4. "Vasari. "Le Vite del più eccellenti pittori, scultori, ed architettori."

Tintoretto has usually been styled a pupil of Titian's, but improperly, since he attended that painter's studio during ten days only. At the end of this brief initiatory term, Titian observing some very spirited drawings displayed in the working room, inquired whose they were, and on being answered the young Robusti's, the "little dyer's," without assigning any cause for so sweeping a measure, he told one of his scholars to take the boy home. Tintoretto, nowise disheartened, but rather nobly fired by what he interpreted as a high honor, thenceforth remained without any personal instructor. Confined, as we are told, by poverty to a mean and inconvenient lodging, but burning with ambition not only to rival all that Venetian Art was then accomplishing, but to add to it an infinity of things which it seemed to him to want, he commenced those indefatigable, those strenuous studies, which are so abundantly characteristic of the energy of the man. Over the door of his room he then inscribed that spirited though anomalous precept, "Michael Angelo's design and Titian's coloring;" and to the study by daylight of every picture he could meet with by the latter, was added far into the night laborious drawing from casts of the great Florentine's sculptures and from the antique. These casts he would swing by cords from his ceiling, and draw from every conceivable, and indeed inconceivable point of view, so as to acquire a mastery of the most difficult foreshortenings. Anatomy he studied with equally devoted earnestness, and having (it is said) first drawn from the best Art-models to acquire a fine style, he then copied the life, remedying its defects by the knowledge they had afforded him. With regard to light and shade, he had recourse to some rather whimsical contrivances of his own. He made little figures, which on occasion he clothed carefully, and placed within a pasteboard house, having windows everywhere, which he could open and shut, so as, by the aid of a lamp, to illumine the puppets within in any way that was needful. All this industry was rewarded by a power and mastery over the various technical resources of his art never surpassed or equalled, except by Rubens; and as to this high proficiency he added a fertile and daring imagination, and a professional zeal which impelled him eagerly to grasp at every worthy undertaking, with little or no regard for emolument, he gained, whilst yet a young man, a position which justified him in considering himself the acknowledged rival of the great painter who had driven him away from his studio so unworthily. Tintoretto's besetting defect, on the other hand, was a frequent want of patience and judgment commensurate with his other high powers; and, above all, a rage for producing too much—for rapidly covering immense spaces of canvas with bold, vigorous, and animated conceptions—for painting houses literally from top to bottom, which he is said to have once eagerly proposed doing for the mere cost of his materials. Sebastian del Poimbo once said of him, "Why, the man will dash off in a couple of days what would take me as many years;" and Paul Veronese, his ardent admirer, would remonstrate with him for injuring the credit of the different artists by taking up and shining in their respective styles or manners one after the other, —a mode of proceeding which went far, he soberly added, with a shake of the head, to destroy the reputation of the profession. His own credit Tintoretto certainly injured by these habits of swift and sweeping production and ambitious versatility; for the Venetians, in commenting on the inevitable inequality which resulted from them, were wont to repeat a current saying, that he had three pencils, one of gold, one of silver, and the third of iron—a saying so well known, it perhaps might better have been here omitted, only that it may be convenient hereafter sometimes to classify the painter's productions according to these three fabled instruments.

Neither was Tintoretto's spirited character displayed in purely artistic matters only. His self-command in painting after her death the portrait of his beloved daughter, Marietta, who, as an accomplished portrait-painter, had inherited some portion of her father's talents, is well known; as also his manly hint to Aretino, when he found himself becoming the butt of that writer's scurrility. The "Censor of the World," or the "Fifth Evangelist," as he was variously styled, having taken his gossip Titian's part against Tintoretto, began to besmear the latter with his ink freely. The artist at the time made no reply, but took an early opportunity of inviting him to sit for his portrait. Aretino complied without suspicion, and most probably with a pleased vanity; but he had not long taken his place before he was somewhat disconcerted and alarmed by seeing Tintoretto carefully take his measure at different distances and angles. "Eh, Jacopo, what are you about?" he inquired, anxiously. "Nothing important," replied Robusti, with a significant smile; "but I now fully perceive that you measure just two pistols and a half high,"—and Aretino did not venture to lampoon Tintoretto any more; these ominous words had the desired effect. With this firmness and decision of character the painter combined many most amiable and companionable qualities, to which Vesari especially bears lively testimony, dwelling with much exphasis on his remarkable powers of conversation and skill in music.

Until recently the opinion current amongst us about Tintoretto as a painter, were, we believe, that he was a man of extraordinary power in many of the more superficial things in Art (if we may so call them),—such as bold drawing, color, bodily action, effect, and also possessed of a fine, vigorous, and daring invention; but unless we widely err, few ever thought of looking for profound and lofty thought as among his leading characteristics, or of ascribing to him a poetic imagination of the highest order. It was reserved for Mr. Ruskin to claim this distinction for him; to discover, or fancy he had discovered, his greatness and his glory bound to the wall (Prometheus-like) amidst the obscurity, the neglect, the damps, and the decay of La Madonna del Orto and San Rocco; to determine to free them forth, and, seating them between the wings of his aspiring eloquence, endeavor to mount them all at once on the highest peak of the Italian Parnassus, above all but Dante and Michael Angelo—Tintoretto being in his opinion the greatest man but those that Italy has produced.* The very name of Tintoretto seems to excite and swell his style to its highest tone, and make it resemble the firmest and most imperial brattlings of the trumpet of Fame itself, for which he is evidently somewhat too apt to mistake it. He proclaims him, to our astonishment, as one whose high-reaching intellect and "imagination penetrative" leave those faculties in all other painters far behind; as one who alone has seized the inmost spirit of the most awful and stupendous themes; who alone "has grappled with them in their verity," not contenting himself with the occurrences of the moment merely, but introducing some strange occult typical allusions in his details, and dashing in also dim visionary retrospections and anticipations, disregarding time and place even, like the freest and most untrammeled poet, so that he may tell in a solemn, mystical manner the whole of the great story or sequence of events at once. Such thoughts, however, it immediately occurs to us, are far better suited to the poet of the pen than to the poet of the brush, who has another and a distinct function, in which the bard can by no means rival him; and some of these conceptions attributed to Tintoretto are *self-evidently* the exaggerations of his eulogist, being indeed of that class which painting cannot possibly express: others, again, stripped of the amplifications and colorings of the critics fervid, torrent-like eloquence, seem to us to grow wonderfully small and poor and dry, and to dwindle into fantastical subtleties, curiosities, and trifles, of which he singularly magnifies the interest and value, as well as the power of invention required to produce them. And, finally, some of these illustrations of Holy Writ, though ushered to our notice with praises of their wonderful insight and profundity, uttered in that authoritative, high-priestly, or hierophantic tone which Mr. Ruskin is fond of assuming, are, as we believe we shall have little difficulty in proving, exceedingly bad theology, and altogether at variance with the true spirit of the event recorded. But notwithstanding all these obvious drawbacks and objections,—though, when we can take breath and look a little steadily into these dazzling and accumulative periods, dissent or doubts of the above kind must needs intrude themselves,—still a writer so observant, contemplative, and ingenious, so abundantly eloquent, and of such undoubted literary power, must ever excite considerable curiosity and interest with regard to the objects of his praise; and so, after reading those passages in which the great discovery of Tintoretto is first fully announced, one of our most frequent Venetian anticipations was the forming, under his local guidance, some clear and satisfactory acquaintance with the works of that powerful painter.

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* "I think that the central man of all the world, as representing in perfect balance the imaginative, moral, and intellectual faculties, all at their highest, is Dante. The two other greatest men whom Italy has produced are Michael Angelo and Tintoret."—*Stones of Venice.* With regard to Dante, it may be observed, by the way, that many will think his moral faculties (under whatever palliating circumstances) rather light in the supposed balance, from his fierce hatred and bigotry; and his intellectual much too heavy with the scholastic theology and imperialism. With regard to Tintoretto, it may be as well to say here that we have just found in Moore's Diary a tribute of admiration paid to Tintoretto by two eminent men whose opinion is entitled to high consideration. "Reminded by Chantrey," says Moore, "of my having asked him, when we were on our way from Italy together, which of all the great painters, whose works he had there seen, he would most wish to have been, and his answering 'Tintoretto,' he himself, as he now mentioned, put the same question to Turner after *his* return from Italy, and his answer, curiously enough, was exactly the same. Chantrey, in relating the above, seemed to think that if he himself could have given the matter a little more consideration at the time when I put the question to him his answer would have been 'Titian.'" With regard to both Chantrey's and Turner's opinions, in order that some little instruction might have been obtained from them, it is a pity the *why* was not asked. Certainly Tintoretto possessed—and perhaps pre-eminently amongst the Italians—those very powers which Turner most needed, that *power* of *drawing* and muscular strength, wanting which our great landscape-painter's forms are so often poor, and stiff, and tame. Mr. Ruskin is perpetually mistaking Turner's keen perception of the principles of structure, and neat, precise, though frequently tame particularising of them, for fine drawing. In fact, his drawing (examine especially his own etchings in the "Liber Studiorum," or compare any of his foregrounds with that of "Ruben's Chateau") is weak for so great a man. One can easily understand, therefore, that he might most have coveted Tintoretto's powers *in addition to his own;* but it is not so easy to comprehend an absolute preference for them on his part, without some such qualification.

The life-like force and brilliancy of his talents, we remember, first fairly dawned on us on the way to Venice, from his portraiture in the Belvidere Gallery at Vienna, the first two halls of which glow all over with such a magnificent display of Venetian color, and calm dignity, and intelligence, and sunny beauty, that we should think, though no doubt it is very much to say, even Austrian Emperiors, even Francis Joseph, even Austrian diplomists and military leaders, could scarcely pace them without feeling something of mournful compunction and shame for what Venice now is under imperial domination. Here are no less than twenty-three portraits by Tintoretto, inferior, it must be admitted, to Titian's best in *refinement* of expression and also of painting, yet of the true Venetian serene stateliness, and consummate for force both of living character and execution. Their vigor and animation are rarely equalled by anything we ever saw. In portraiture, where he was restrained from besetting extravagances by the necessity of a close and pure rendering of nature, Tintoretto seems to have been almost unfailingly admirable —ever with his golden pencil in hand.

The "Miracolo del Sciavo" in the Academy, the first of his pictures we saw at Venice, and to which we shall return presently, Mr. Ruskin has not expressly alluded to in his published volumes, perhaps considering it sufficiently well known and appreciated already; but the two small Tintoretto's opposite it, "The Temptation of Adam" and "The Death of Abel," he refers to as "among the most noble works of this or any other master, whether for preciousness of color or energy of thought." Here at once commenced our difficulties, and we were at a loss to conceive by what particular topics such an opinion can be maintained. The color of the Adam and Eve can hardly be called *color* in a full sense of the term, the flesh tints being a warmish stone-color, and the landscape all a yellowish-brown of monotonous hue—the whole picture, in short, of a decidedly artificial, umbery tone. Now Mr. Ruskin, as all his readers well know, is apt to inveigh copiously and exceedingly against brown tones in the later schools of painters, which he abhors so vehemently: and yet here, at once, we find this most unquestionably and very decided brown picture by his favorite praised as one of the noblest in the world for preciousness of color! With regard to his second item of praise, the only "thought" of the slightest importance we could discover is a certain expression of mingled reluctance and fascination in the attitude of Adam, who sits with his back towards you. The Eve, who, seated beside him, presses forward the apple, has an absurd, loosely-sketched face, with nothing that can be called a physiognomy about it, and her limbs, as well as those of Adam, are very badly drawn, and the execution is sketchy indeed, but most disagreeably heavy and coarse,—for Tintoretto, whatever may be said of his general powers as a painter, had often a bad, clumsy touch. In the companion picture, "The Death of Abel," all that you can see is a meagre, ill-shaped man sprawling under the murderous gripe of a desperate ruffian of the same ordinary character, with nothing about either of them to distinguish this, the first murder, from any homicide ensuing, except the calf's head, which, with the glazed eye of death, lies beside them, to signify the interrupted sacrifice. In coloring and execution this picture precisely matches the other.

Oh that riddling "energy of thought!" It was *then* (we dimly remember) humiliating to us to stand ever so long before those pictures with the best and most patient intentions in the world, and not to be able to find it out, or even make a guess where it lies, except such a one as we were forced immediately to check for its far-fetched triviality. In order to relieve our perplexity, let us haten at once, we said, without more odo, to La Madonna del' Orto, where is one of Tintoretto's "mightiest works," "The Last Judgment," some of the thoughts in which Mr. Ruskin *has* pointed out and expatiated upon: there surely we *may* be able to follow him now and then, if only at a humble and halting distance.*

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* Mr. Ruskin's opinions given without his reasons are really sometimes very puzzling. He is quite tantalizing in his mysteriousness. To take a home instance from a picture familiar to us all, Millais's "Autumn Leaves," of last year's Academy, without one word of explanation, he pronounces to be the most poetical work of the master. What, more poetical than the "Lorenzo and Isabella." and "The Huguenot," those mawkishly sentimental school-girls, piling up very ill-painted leaves in a manner in which no girls ever did pile them, unless their minds were thoroughly diseased by morbid and maudlin literature and culture in all their various shapes! In what the poetry consists we ourselves never could so much as guess, or learn of any of our equally solicitous friends. Is it, we inquire of each other, intended as a *satire* on the vanities of the present wicked age, in which young ladies (thanks to Mrs. Ellis and others) are far too intellectually trained to do such things in the old rollicking way; no longer pushing one another into the heap as they pile it with screams of mischievous merriment, or any other ungraceful impropriety? But this (and we could think of nothing else) would be satire and not poetry. Besides, in that case, the purpose of the painter would surely have been more fully indicated. The refined culture and general habits would have been pointed out by the "Proverbial Philosophy," &c. &c.; being laid on the grass beside the mediæval embroidery; and the tall lean gouvernante introduced behind as pervading the scene with even more imposing evidences of solemn seriousness in her immense uplifted evening-star-gazing eyes. At least we should think so in our simplicity. With regard to the tone and general effect of this picture, Mr. Ruskin's observations are equally remarkable. Twilight, he says, had never been represented before. Giorgione had given the glow, but not the mist rising from the valley. Now the twilight tone is not by any means preserved throughout the picture in a satisfactory manner; certain gaudy colors here and there flaming or flushing far beyond its influence. However, we concluded at once, on perusing the last clause of Mr. Ruskin's verdict, that something must have been made of the mist rising from the valley, at all events. We expected, on a second visit, to find that this beautiful and interesting effect had been brought forward prominently, with much fullness and delicacy of treatment: but what was our surprise to discover nothing, absolutely nothing, more than a little scumbling or glazing of white in front of a black hill; so small in extent; so slight, and so destitute of an particular feature or character, as scarcely to be worth a moment's notice. Thus does the ever quick fancy of this writer frequently run away with him in expatiating on the pictures of his favorites for the time being. But might not, we ask, equally liberal and ingenious interpretation make something out of even the detested Domenichino, Salvator, and the other "later men?"

So to La Madonna del' Orto we went, a pseudo-Gothic church of but slight architectural merit: there is no *church* in Venice, except St. Mark's worth going far out of your way to see. It is situated at the north end of the city, where the canals are thinly peopled and very retired, and you meet with few but the poorer and the idler of the aborigines—old women sitting within their doorways, and children loitering vacantly about the tiny slender bridges, which are here often ruinous, and grass-grown, and solitary, and decrepid, like the fine and truly amiable old mansions they lead to; or like this church of "Our Lady of the Garden" itself, which is in so rickety a condition as to require within the support of a whole forest of scaffolding. Beside the high altar we found the Tintoretto we came to see, his "Last Judgment," an immense work, at least sixty feet high. Truly it is extremely unprepossessing in all that relates to *pictorial* beauty and effect. In general tone it is a heavy greenish brown, with lights but dim, and broad masses of the dingiest obscurity, out of which mysterious crowds of figures and limbs peer forth at the bottom of the picture in a confusion not easily unravelled. It seems as if the earth were everywhere yielding forth substance which once bore the human form, and restoring it to its original shape. It is taking the form of arm and legs, and still slumbering or bewildered faces; and creatures scarcely yet re-fashioned, with grassy sproutings about them, lie thicker in the dim, shade than graves in some old *campo santo*. Behind them, and somewhat aloof, the waters also seem (so far as we could see) yielding up their dead; and a boat—a barque of accursed souls—is urged down a swift, pale cataract. Above, and nearer than this, the upper half of the huge tower of a picture is taken up by a coarse unworthy representation of the heavenly hosts, angels and saints, ranged somewhat tier above tier on the most substantial dark blots of clouds with a faint light between them, and our Savior quite afar at the top, in the point of the Gothic arch which bounds the picture.

Such, vigorously conceived, certainly, within a limited point, but most coarse and ungainly in expression, color, light and shade, and execution, is the painting which Mr. Ruskin says is the only one in which "this unimaginable event has been grappled with in its verity." Is not this an Irishism (by the way) to say that the event is inimaginable," and then add in the next words that "it has been grappled with in its verity." However this may be, it certainly seems, as if, stimulated by the delight and pride of a discoverer, and by a consequent overwhelming predilection for Tintoretto, his imagination had altogether run away with him when he penned his highly-wrought and brilliant descriptive passage on the subject. All its more novel and impressive parts are, self-evidently, arbitrary interpretations—imaginary superstructures of his own. They are not borne out by the picture, and, indeed, could not be by any picture. For instance, a spirited waterfall enough in the background (about on a par, we should think, with Colwith Force, in Westmoreland), he was thunderingly magnified into the "oceans of the earth and the waters of the firmament, gathered into one white ghastly cataract, the river of the wrath of God, roaring down where the world has melted with its fervent heat." In this uncontrovertibly exceedingly dingy work the awakening crowds are represented as "blinded by the white light of the new heaven;" and the firmament is described "as full of a very dust of human souls," currents of atom life in the arteries of heaven, "soaring up till the eye and thought can follow no further borne up their inward faith and by *the angel powers invisible*." These fine things, and particularly those which are expressly admitted to be *invisible*, are, it is scarcely needful to add, not in the picture: they are not susceptible of pictorial representation; and they prove the imaginativeness not of Jacopo Robusti, but of Mr. Ruskin. The painter has given him a starting-point, and he has soared quite far away from it, without, perhaps, being altogether aware of the exceeding length of his excursion. And heaven forbid that we should snub the poetic mind. Let Art as well as Nature be its food, and afford it the fullest and freest inspiration. All we contend for is that the result should be carefully distinguished as original poetry, not sober criticism. Let it be recorded in verse, or if not in verse, in some autobiographical work, or sentimental tour, or memoirs of your own imagination and feeling, in prose, as thus:—I, the present author, being of an active, readily excited fancy, and looking at this picture, was fired by such and such excursive thoughts:—and thankfully we should receive them, *as the writer's own*. If beautiful, it were a thousand pities to lose them. But what we seriously object to is that such arbitrary assumptions of the fancy should be introduced into passages *written for the express purpose of enabling us to estimate the imagination of another*. And moreover, together with the extravagant praises with which they are put forth by their author, they of course tend, quite inevitably, to disappoint and disgust the independent mind with the painter whose works give occasion to them; and in that weaker fry of followers who accept implicitly all that is thus eloquently taught, they create a blind admiration, such as entails much weakening of whatsoever powers of imagination they may possess, much confusion of mind, much waste of feeling, thought, and precious time. Besides, their docile veneration for their gifted teacher deserves a better return than that he should lead them about on a false scent, and with his revered eloquence keep on evermore throwing quantities of gold-dust into their eyes. The British public, we protest, should not be treated in this manner; in short, these extremely exaggerated descriptions lead to an utter confusion of ideas upon a most important part of the subject, which it was one of the primary duties to make clear.

Opposite is another sixty feet of unpleasant canvas, "The Worship of the Golden Calf," in which uninteresting figures, harsh coloring, heavy light and shade, and coarse execution, are, it seems, as a veil to other "mighty thoughts," worthy of being *vis-a-vis* to those in the picture of the "Final Resurrection;" but we did not attempt to decipher them, being attracted in another direction by an altar-piece in one of the side chapels of "The Martyrdom of St. Agnes," also by Tintoretto. Here are attractive thoughts indeed: thoughts such as a picture, and a picture alone, can express; thoughts of magnificent color and beautiful light and shade, of personal character, and of bodily expression. The saint, in white drapery, with her white lamb beside her, is kneeling on the ground, awaiting her death, amidst a most splendid crowd of figures—nobles in the armor of Tintoretto's times, and priesly and civic dignitaries, all painted with a richness and completeness of effect that vie with Paul Veronese, to say the least of them; the coloring being noticeably more yellow and more deep than his, and the effect more round, solid, and forcible. In all these respects, and in many others, though with a somewhat drier manner, the work reminds one at once of Reubens, the heir of much of Tintoretto's genius, and his only worthy successor, who visited Venice six years after his death, and no doubt, derived much inspiration and deep and delightful instruction from this picture. It is painted in the magnificent and attractive manner of the master, and so far is to be classed with the "Miracolo del Schiavo" in the academy, that immense picture produced in his thirty-sixth year, which is so often the first in Venice to impress visitors with a kind of wondering respect for the colossal vigor and brilliancy of Tintoretto. The subject may be thus described;—A certain pious slave of a Provencal knight persists in visiting the relics of St. Mark, in defiance of his master's commands, and on his return the enraged knight has him put to the torture. But behold, before they can carry their purpose into effect, the cords and instruments are miraculously shivered by St. Mark, who descends through the air, unseen, to baffle them. In the picture the naked slave lies senseless on the ground, and St Mark hovers above, forshortened, his face away from you. His most boldly represented action, the fine sanguine but sombre glow of his flying drapery, and the mysterious shadowings of the rest of the figure, are magnificent, but ominously so The glory around his head flames, one may conceive, all angrily, as if it shot forth sharp burning terrors into the hearts of the torturers beneath; and under one arm he bears the volume of his Gospel, as if it were still, in the realms of blessedness, his chief glory and delight. But already his mandate has shattered the cords and instruments of persecution Small fragments of rope are scattered around, and the iron head of a hammer has been stricken clean in half in its massiest and strongest part—a decidedly vigorous touch, significant of the amazing power that has been thus exercised. In the middle of the picture, a fine picturesque turbaned Saracenic figure holds up before his enthroned Lord another broken hammer, to demonstrate to him the more emphatically the reality of the astounding visitation; whilst the bystanders crowd forward and bend over the senseless victim with emotions of curiosity, awe, and newly awakened reverence. He lies calm in a swoon before them. Perhaps the miraculous power of the saint, which has thus frustrated his torturers, has, even at the same time, benignly steeped him in a childlike, soft-breathing, balmy slumber, to nurse and guard a life worn by much suffering. But this is, of course a mystery.

Altogether it is an imposingly powerful work, much to be admired for the forcible and animated general conception of the *scene* or incident; for the colossal vigor of the execution, most simple, broad, and energetically straight-forward; and for the strength, glow, and transparency of the coloring, which is yet finely pervaded by a general yellow-greenish tone, as by a kind of faint and transitory eclipse; as if the miraculous interposition of the saint had cast an ominous shadow and wanness through the air. The hues at first reminded us of a bed of dahlias, glowing and fresh indeed, but influenced by the shadows of passing thunder-clouds.

The fulness and depth of the foreground hues are relieved by aerial architecture, like ivory in yellow sunshine; and here, perhaps, we see the original of an arrangement which became almost habitual with Paul Veronese, and not unfrequent with Rubens. The colors, few in number, are repeated in unvaried masses in the Venetian manner, without the never-ceasing variety and modulation characteristic of Rubens. They are deep, luminous, highly transparent, and perfectly harmonious; (but like every other painter's) they are inferior to the great Fleming's in that which represents the very bloom, freshness, and pulses of life; nor is the execution comparable to his for the union of exquisite lightness, softness, and roundness, with marvelous fire and force; and, therefore, Tintoretto, notwithstanding his extraordinary merit, we, with all due deference to Mr. Ruskin, take to be the far inferior *painter*, in the proper sense of the term. We also take him to be equally inferior in poetic vigor of imagination, and in that exhaustless fertility of the true pictorial invention in which (with much *grace* and beauty of many kinds, veiled by his unfortunate coarseness of *form*) Reubens is perhaps rivalled by Raphael alone.

(*To be continued.*)

From the Liverpool Photographic Journal.

THE CLEANSING OF PHOTOGRAPHIC GLASS.

How varied are the recipes and instructions given by different operators on this head! Water and a cloth only; whiting, and water, and a cloth. Tripoli and water; tripoli, ammonia, and spirit of wine; tripoli and ammonia only. Rotton stone and ammonia. These are amongst the mild remedies, and which all succeed in the hands of their respective manipulators; perhaps good glass and carefulness are the foundations of success. The more energetic spirits treat their plates with nitro-sulphuric acid, nitric acid and a tooth-brush: sulphuric acid, and extemporaneous nitro-sulphuric acid, by sprinkling powdered nitrate on the plate and then adding oil of vitriol. Others insist that alkalies are the thing, and according recommend caustic potash lime, or simply ordinary pearlash and soda. But the list is not yet exhausted, and we are told that if we wish to ensure a clean plate, we must, in addition to any one of the above agents, no matter how energetic, finish with strong cyanide of potassium. Having lately spent three or four days out of London, we, by way of relaxation, made experiments in positive portraiture, and were necessarily led to reconsider the present subject. On the score of convenience, effectiveness, and economy, we decided to use a mixture of *whiting and cyanide of potassium* moistened with water, and after this we had not a single failure from dirty glasses. some of the plates used had films on them which had remained Since last year, yet these were readily brought into working order. The cloths used in wiping them were not specially washed; of course they were ordinarily cleansed Perhaps the fact is, some samples of glass, may, at *first*, require treatment with acid; but this once done the whiting and cyanide of potassium will do the rest. This method has the advantage of also cleansing the fingers of those who are methodical enough to insist in cleansing off at the *end of each day* the films not required to be kept. A piece of rag dipped into the almost pasty mixture was used to apply it to the glass. The rinsing was performed in running water.

From the Jour. of the Phot. Soc.

RESEARCHES ON THE DEVELOPMENT OF CHLORIDE OF SILVER.

BY W. G. MIERS, ESQ.

Some considerable time back my attention was directed to the subject of developing the chloride of silver; I have since occasionally worked at the subject, and the following are some of the results that I have obtained. My earliest experiment, suggested by some observations, on the chemistry of vegetable organizations, was this; a paper was coated with a solution of guaiacum in ammonia, to which also had been added grape-sugar and chloride of ammonium; when quite dry, it was floated on a solution of nitrate of silver, blotted, and exposed to the light under a negative for a few seconds; on pouring on a sulphate of iron developer, the *exposed* portions of the picture became of an *intense black*, the parts *unacted* on by the light being *reduced* to the state of *white metallic silver*: pyrogallic acid darkened the paper all over; gallic acid developed the picture on those parts acted on by light, while the chloride on the covered portions was left apparently unchanged, it was therefore chiefly used in all the subsequent experiments; the grape-sugar was early eliminated, as it had but little influence on the result.

Experimenting further, I found that I could substitute neutral salts of other acids for the guaiacic, and obtained similar results with the acetate, citrate, tartrate, oxalate, benzoate, succinate, and formiate of ammonia. If we expose a paper that has been brushed over with a solution of a chloride in gelatine water, and floated on nitrate of silver, then developed with gallic acid, we usually obtain a picture of an unsightly red color. If we now take another piece similarly prepared, and add to the developer a small quantity of one of the above-named salts, the acetate of ammonia for instance, we obtain, if all the solutions are neutral and the exposure has not been overtimed, a picture that will develope black, of an intensity that will vary with the amount of chloride in the paper. I further found, that not only the acid, but the base might be varied, provided the one substituted had an affinity for chlorine; that the salts of zinc with the above-named organic acids, produced precisely similar effects, also the tartrate of antimony. The chlorides chiefly used were those of ammonium, sodium, barium, also the bichloride of mercury; the first three are nearly similar in their effects, but some of the others did not give uniform results.

It might be supposed that groups of bodies having in some respects different chemical properties, would have a varied action on the developing process; experiment, however, showed me that they all produced the same effect in more or less time. Papers were prepared similarly, and after exposure cut in half; one-half of the whole series was developed with gallic acid and acetate of zinc, the other side developed with gallic acid successively changing for the acetate of zinc one of the salts before named; on comparing the two halves, they were similar in every respect, but some had taken longer time than others: the most energetic seemed to be the acetate of ammonia, about four drops to a drachm bringing out the picture in a few seconds, while some of the others required nearly half-an-hour.

The presence of a small quantity of an organic acid to the silver solution materially modified these results, giving rise to a variety of tints, dependent on the particular acid present, its quantity, the time of exposure, and the nature of the vehicle (size, albumen, &c.) on the surface. It is not easy with so many causes to trace completely the separate influence of each, but it may be noticed that each acid gives its peculiar tone or tint to the picture, and that if more than a certain proportion be added, the picture becomes red, as if it had been developed with gallic acid alone; the addition of 6 or 7 drops of acetic acid to a drachm of nitrate of silver solution will be enough to occasion this, less quantities giving different tints with the same time of exposure.

I regret that I have not been able to investigate this subject as fully as I should have wished, more especially with reference to the material forming the surface, which seems to have considerable influence. I have chiefly used gelatine and albumen, also collodion, and many other vehicles; the papers were generally brushed over with a 10-grain solution of chloride of ammonium, which before floating on the nitrate of silver solution was laid face up for a few minutes on a damp cloth and covered with a heavy piece of glass. To obtain uniform results, a bath should not be used: I found it best to pour on a flat glass sufficient nitrate of silver for each experiment, float the damp paper on it for some minutes, blot off, dry, and then expose: the time of exposure may be 5 or 10 seconds in a moderate light. The best way is to learn by practice the time in which a paper will, in a certain light, just begin to color at the outside border, then to give about half that time: if the exposure is continued until the outside border is but slightly colored, the deep shadow will generally develope red and tranparent. It is an instructive experiment to uncover successively portions of a paper while printing at 5, 10, 20, 30, 40, 50 seconds; the influence which the time of exposure has on the result will then be clearly seen; the time of exposure is also reduced as the quantity of the coloride in the paper is increased.

There is a fact that I cannot pass unnoticed, from its connexion with the theory of this subject: if the salt added to the developer be one of those the acid of which has a powerful reducing action, such as the formic or guaiacic acid, the chloride of silver *unacted* on by light will be *reduced* to the state of *white* metallic silver; while if salts of other acids which have not such a reducing action are used, as the acetates, citrates, &c., the chloride of silver unacted upon by the light will be apparently unchanged; those portions on which the light has acted being in both cases in precisely the same condition.

Now with respect to the iodides, it will be found that the addition of any of the above-named salts will not affect the development in the same way, but rather altogether retard it. I have tried it many ways on papers prepared with iodides of potassium, ammonium, and cadmium, developed with gallic acid, and with various collodions, and this is the general result. I have also observed, that the addition of a small quantity of an iodide to a paper prepared with a chloride has a similar effect; this point I intend to experiment further upon, together with the effect produced on the bromides.

I had intended to have offered some remarks on the theory of the subject, but recent experiments have qualified certain views I had with reference to it. There can be little doubt that the base, ammonia, zinc, antimony, &c., is the chief agent in the result. Whether we are to say, that in order to develope chlorides under condition analogous to iodides in ordinary photographic practice, we require the presence of certain bases, having an affinity for chloride in combination with a weak (organic?) acid, I leave to future experiment and investigation; the facts here stated appear to me certainly to lead to this consideration.

Lamb's Conduit Passage, Red Lion Square, Aug. 7, 1857.

Hydrophosphorus Acid.—This acid is prepared by digesting in water the phosphuret of barytes, when phosphate of barytes and hyposulphate of barytes are formed; the former is insoluble, the latter soluble, and are separated by filtration The barytes is then to be separated by sulphuric acid, and the hydrophosphorous acid is held in solution; when its solution is concentrated by evaporation it has the property of deoxidating several substances, and precipitating many metals in the metallic form.

From the Jour. of the Phot. Soc.

EXPERIMENTS ON THE VARIOUS ADHESIVE SUBSTANCES Used in Mounting Photographs, as affecting the Permanence of the Prints.

BY MR. COLIN SINCLAIR.

Read before the Photographic Society of Scotland, July 14, 1857.

The mounting of photographs is so simple an operation, and so uninteresting a subject, that an apology might have been necessary in bringing it before the Society, were it not for the impression that has prevailed that the fading of photographs is more or less connected with the mounting of them, and that the adhesive substances used frequently prove fatal to the permanence of the picture.

This impression, and the fact that professed photographers differ in opinion and in practice as to which of the adhesive substances is the best to use in mounting, induced me to try one or two simple tests, to ascertain, as far as I could, which of the materials commonly used was the best, and least likely to prove injurious.

The substances in most general use are starch, albumen, isinglass, and gum-arabic. The latter I had frequently heard condemned, as being hurtful to photographs when used in mounting; of this I was somewhat doubtful, because gum-arabic has this property to recommend it, which none of the others have, viz. that it will keep perfectly sweet for any length of time in a liquid state, if properly dissolved in *boiling water*. Surely this is a very important recommendation for any such substance used in connexion with photography.

I have been in the habit of keeping liquid gum beside me for miscellaneous puposes, and used at first to dissolve it with cold water, but found that it kept fresh only for a short period of time, and then began to emit a bad odor. I have no doubt that gum in this state would prove detrimental to photographs mounted with it.

To test the matter, I adopted the following plan: I prepared a small quantity of each of the substances already named, in separate dishes, and selected two of Mr. Tunny's Photographs, one of them of the brown tint on albuminized paper, the other of the black tint on plain paper*. I chose Mr. Tunny's photographs knowing that he subjected them to a great deal of washing, so that whatever might be the result, any change should be attributed as little as possible to the presence of hyposulphite of soda. I cut each of the two prints into five pieces, the fifth piece being laid aside for future comparison, and then distributed the four pieces of each picture over the four dishes containing the different materials, so that there were two pieces completely immersed in each dish. They were kept there for one month.

I would have allowed them to remain longer in this state, but the pieces became so fragile, that I could hardly remove them from the liquids in which they were immersed. After cleaning the pieces, I mounted them along with the fifth piece, so as to show the relative effects on each, and I now lay the mounted results before you.

It will be observed that the brown photograph on albuminized paper has suffered the most, especially the piece that was immersed amongst the albumen,—it has given way very much; the pieces that were amongst the isinglass and the starch are slightly affected; that which was in the gum is the least changed of any, while the black picture on plain paper has come out of all the four different substances much the same as it was. I may mention, that that specimen was thoroughly printed into the paper,—so much so that there was almost as much picture on one side as the other; why it should have stood the test so much better than the other picture, I leave to the practical photographer. But as this experiment was of a very extreme nature, and as it is very unlikely that photographs in general will have the misfortune to be subjected to so severe a test, I tried a more gentle treatment, and one more in unison with the usual application of adhesive substances to paper.

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* These photographs were fixed in the manner described by Mr. Tunny, in No. vii., p. 222.

I selected two other photographs, and cut them into five pieces, the fifth piece being preserved for comparison. I mounted one piece of each picture with starch, and so on with the others, using all the four substances.

The two pictures thus mounted I have kept for two months in a damp cellar, but as the quantity of adhesive substance in contact with the mounted picture is very small, the process of decay must therefore take a longer time than in the case of those that were tested by immersion, so that these two photographs will require to remain in their solitary confinement for some time longer, as they have as yet shown no results under this treatment.

According to the first experiment, and so far as the second one has gone, I think it is evident that the gum-arabic is as safe as any of the other substances tried, if not more so. The only objection to it is when it is used for photographs that have had a great deal of washing, as the gum goes partially through, and gives the picture a freckled appearance. But this in most cases is easily remedied by the application of a soft sponge with clean water to the face of the picture, so as to equalise the moisture that has come to the surface. However, I believe that clean fresh starch may be the best to use when the paper has become bibulous from excessive washing: there can be little fear of the starch being injurious so long as the picture is kept free from damp, for it is then that some element is let loose that proves destructive to the photograph, so that it will be wise to avoid damp walls, damp books, and damp cellars.

From the Jour. of the Pho. Soc.

GUM ARABIC AS A PRESERVATIVE AGENT.

25 Scale Lane, Hull, May 28, 1857.

To the Editor of the Photographic Journal.

Sir,—Having been for some time past making experiments on the various methods of preserving the sensitiveness of collodionized plates, I have hit upon a method which gives all that can be desired in cleanliness, definition and ease of manipulation.

The great objection I have found with the honey and oxymel processes are, that the plates contract dust, if kept a few days, to such an extent as to spoil the beauty of the resulting negatives; the gelatine process seems very liable to stains, and two or three hours spent in developing is very tedious.

By the method about to be described, the plates may be kept several weeks after preparation; they will dry in a few hours without the aid of heat (no little advantage to the majority of amateurs); and the surface being dry will not contract dust. The time of exposure (for the specimen sent) was $2\frac{1}{2}$ minutes with a $\frac{1}{4}$-plate Lerebours combination, stopped to $\frac{1}{4}$ in.; the development was completed in 5 minutes, with one application of the developer.

The collodion is made as follows:—

Ether, sp. gr. 750	5 drachms.
Alcohol, sp. gr. 800	3 drachms.
Gun cotton	5 grains.
Iodide of potassium	4 grains.

Excite as usual in a 35-grain bath of fused nitrate of silver, wash thoroughly under a tap, taking especial care that no impurities are washed off the fingers in holding the plates during washing, a frequent cause of stains in keeping processes; drain thoroughly and apply the following:—

Solution of gum arabic in distilled water	specific gravity 1·01.

The best method of applying this would be according to the method described by Mr. Llewellyn in his oxymel process: place the solution in a tray larger than the plate, tilt the tray so as to make the solution run to one end, introduce the plate, and immediately restore the tray to a horrizontal position, when the solution will flow evenly over the plate, which may now be drained and put into a plate box, covered at the bottom with 2 or 3 thicknesses of blotting-paper; the plates should not be used until dry, or the picture would be uneven.

The development may be delayed several days without danger; pour over the plate distilled water, allow it to remain a few seconds to soften the gum, and then pour over the plate the following:—

Pyrogallic acid	$1\frac{1}{2}$ grain.
Glacial acetic acid	10 minims.
Citric acid	$\frac{1}{4}$ grain.
Alcohol	10 minims.

Allow this to remain on 1 or 2 minutes then pour it off, and add a few drops of a 40-gr. solution of nitrate of silver; again pour it over the plate, when the picture will develope rapidly, and may be brought up to any degree of intensity.

Fix as usual, dry and varnish, and the negative is finished.

Abraham Johnson.

[Probably our correspondent is not aware that Dr. Hill Norris has patented the above process.—Ed. P. J.]

From the Journal of the Pho. Soc.

THE OXYMEL PROCESS.

To the Editor of the Photographic Journal:

Sir,—When I commenced the oxymel process some short time back, I was agreeably surprised at my success in producing far better negatives by it than I had at first anticipated. I had seen so many letters in your Journal from the unfortunate correspondents, containing different complaints and asking information upon almost endless causes of failure, that I thought, when I tried, at least to spoil some dozens of plates before getting anything like a picture; but guess my surprise, when the very first and succeeding ones developed as clean and intense, after having kept the plate two or three days (for my patience would not admit a longer period), as any negative produced by the ordinary wet collodion process. I began then to think, "this may be all very well, now; perhaps in a day or two I shall be perplexed the same as others," for I remembered reading in the communication of a correspondent, that one of the first negatives produced by that process was one of his best, and that some little time after, his success took a different turn. However, several days and weeks have passed, and I think I may say I have been as successful with plates treated with oxymel and used dry as in the preparation and immediate use of ordinary collodion, and for the benefit of those less fortunate, offer these few remarks. The first thing I did before operating, was to obtain, by reading your Journal, a good theoretical knowledge of the process about which I was shortly to bring the best of my abilities to work upon, and in this I was aided by an instructive article written by Dr. Hill Norris (vol. iii. p. 179), and would recommend its perusal to all who are about manipulating with honey or oxymel, as the only object to be borne in mind in this process different to the wet is the collodion. To this I attribute my success, as when I made my first essay the collodion was old, and by a fortunate accident happened to be exactly in the right condition for using in this process, as I have since found out in some experiments lately made with a different collodion, recently iodized, which, although it gave most beautiful and intense negatives when used wet, completely failed, causing stains, spots, foggings, and all the evils to which collodion is subject when kept by any of the preservative processes. The collodion should have been iodized for at least a month or two; if less, stains are likely to appear, if more, it will not matter, as I have used some which has been iodized six months, and have obtained a good picture, only of course allowing a longer exposure in proportion to the age of it.

Having procured some collodion and prepared the plate in the usual manner, let it drain for a few seconds, and then immerse it in the washing-bath for about 1 minute, moving it frequently up and down to ensure the perfect removal of the free nitrate of silver; then stand it to drain and carefully wipe the back and sides with blotting-paper before undergoing the next operation. The washing-bath will answer well for several pictures; and I have also used common water instead of distilled, and have found no difference. The plate can now be coated with oxymel by pouring on or dipping into a bath of it. I prefer the latter, as being more economical, less troublesome, and less liable to give an uneven covering, besides allowing time for commencing another plate: by this means twelve tolerable sized plates can be easily prepared in one hour. The only care required when using a bath, is to dip the plate in steadily, occasionally lift it up and down to ensure the oxymel laying evenly on it; 2 minutes will be found sufficient for this purpose, when the plate must be well drained, and then stood on blotting-paper to dry, when it can be stowed away in a dark box and used at leisure. I have tried several samples of oxymel purchased at different chemists, and found them (when diluted with about 4 parts water) to answer well: my experience does not admit of my stating how long the "bath" will remain good, or whether it gets weaker by using; but I should imagine it would, although I have succeeded perfectly well at the end of a fortnight, preparing on an average four or five a day, of course occasionally filtering it.

The exposure is about 4 times the length of ordinary collodion, but no exact rule can be given, that depending on the light, time of day, diaphram used, &c.

The developing can be proceeded with in the following manner: —Many days after the plate has been exposed, immerse the plate again in the washing-bath for about 5 minutes (using the same water as when the plate was prepared), and then develope in the ordinary manner, using the pyrogallic solution rather stronger and adding a few drops of the nitrate-bath (this latter is indispensable), when almost any intensity can be procured.

These remarks may be plain, but can be replied upon as producing successful results. With ordinary care, the process seems remarkably simple, and the success that will eventually be arrived at, ought to stimulate those who have been less fortunate in their first attempts.

I noticed some beautiful views by this process in the last Exhibition, by Mr. Shadbolt, Mr. Llewellyn, the Rev. H. Holden and other gentlemen. I certainly must congratulate them upon their success, and doubt not, that any hints they are capable of giving, as regards views of out-door operations, will be gladly received by those who have not had so much practice in that branch of photography. E. J. J.

From the Jour. af the Phot. Soc.

PHOTOGRAPHIC PRINTING

Without the Employment of Silver Salts.

8 Walker Street, Aug. 10. 1857.

To the Editor of the Photographic Journal:

SIR,—I have much pleasure in sending you a couple of specimens of my copper-printing process. Would you be so good as to present the one either to the Society or to the Printing Committee in my name, and accept the other for yourself? I do not send them as specimens of the *amount* of excellence attainable, but simply of the kind of result to be got. The paper of these specimens was prepared with a mixture of bichromate of potassa and sulphate of copper (so far Hunt's Chromotype), exposed to the sun till a distinct print of the sort was seen, well washed (I have generally used a very *little* acid in one of the changes of water near the last, though, particularly if we use warm water, this is not necessary), floated on, or steeped in ferrocyanide of potassium till the copper is all converted into the red ferrocyanide, and then again thorougly washed; after which it is toned in a bath of iron-salt (I have used sulphate with a little citric or other acid to keep it clear), and finally washed and dried (using common spring water). I sometimes add to it a very minute quantity of bitartrate of potash or other acid, to prevent precipitation of ferric oxide.

This process may be applied, not only to plain paper and to paper highly albuminized, gelatinized, or soaked in gelatine, &c. (I have tried the gelatine *mixed* with the salts,) and to parchment-paper, and textile fabrics, &c. but to albumen, gelatine, and other films on glass, porcelain, and other substances. I have described the materials as used in preparing the specimens sent; but what I recommend in preference is a bichromate of copper, prepared by dissolving the insoluble precipitated chromate in chromic acid. The solutions of the chromate in ammonia and in sulphuric acid will also do, or we may print with bichromate of potash (or, better, of *ammonia*) alone, and then soak in a bath of sulphate, nitrate, ammonio-sulphate, or, ammonio-nitrate of copper, the last giving green prints in the first instance.

I have put all these variations *to the test*. In all cases, both in this and other processes, I would recommend the substitution of the chromate, or bichromate of *ammonia* for the potash salts. As to permanence, I think the process promises very fairly indeed. Prussian blue is pretty permanent in color, except under long-continued sunshine; and the effects of even this it seems, or is said, spontaneously to recover. The ferrocyanide of copper is a *very stable* salt.

Practically, all I can say is, that I have kept cuprotype prints about 18 months, without fading. I was unwilling to say much till they had stood some such time, as you know how I was disappointed in my beautiful cobalt prints, which *ought* to have been permanent.

A great improvement to the copper-prints is to tone them, after they have been washed from the ferrocyanide, in a uranium bath, when we bring out the details better, and get a very beautiful uranium print, much superior to the copper print, and purer in the lights than that which my formerly described uranic process generally gives[*]. We either stop here if we wish a beautiful red-brown print, or transfer the print next to the iron-bath, when we shall get capital results.

As recommendations of these processes, may be named—the variety of tints attainable according to length of time in the toning-bath, the purity of the lights attainable, and their probable permanence.

Supposing that protracted brilliant sunshine be injurious, paper prints need not be exposed to that, as our great present desideratum is to get a process cheap enough for book-illustration, which will not fade in the dark, which the paper prints so frequently do. The iron from the concluding iron-bath is easily washed out of the prints, and any very minute quantity remaining would not lead to their irreparable destruction; while in silver prints prepared on a large scale, as they must be for book-illustration, I can hardly imagine that any one can feel much confidence in their freedom from hyposulphite.

I have long ago pointed out that most, if not all the varieties of the cyanotype prints were tonable by copper and uranium baths (as well as by gallate and tannate), but as to the more rapid varieties produced by development of sesquisalt of iron papers, there is difficulty in getting clear lights. The toning of the cyanotype produced by ferrocyanic development of a bichromic iron print promises, perhaps, better in this way. I have tried a paper prepared with a mixture of salts of ferric and uranic oxide, developed by ferridcyanide of potassium.

The action of the metal-baths is an interesting one. It is doubtful exactly how far there is a replacement of one metal by another (in some cases, particularly when the print is left long in it, it certainly takes place) to a very great extent, if it is not total); and how far the metal in the toning-bath merely forms a colored precipitate by its mutual action with that portion of alkaline ferrocyanide (or ferridcyanide), which all heavy metal salts of these cyanogen radicals seem to carry down with them. I think that in showing how a (reliable) neutral tint may be produced by the mixture or combination of different highly-colored salts in one paper, I have opened a door which must inevitably lead to much that will be valuable in photography. There is hardly a metal giving colored insoluble salts which we may not use in this way, either for its own color in its salts; or that which they form along with the colored salts of other metals. We may also make photographs with various acids or radicals in combination with one metal or base, as well as with many bases with one acid or radical, or we may have a plurality of both bases and radicals in one photograph. Among the classes of salts to which I would particularly direct attention, are the chromocyanides, chromi-cyanides, cobalto-cyanides cobalti-cyanides, and their allies; also the nitro-prussides, the mellonides, the arsenites, the salts of the acids formed from naphthaline and allied acids, and all acids or radicals giving colored insoluble *stable* salts, with any metal or base. Among metals peculiarly deserving of attention, I may name iron, copper, nickel, uranium, chromium, manganese, cobalt, tungsten, titanium, molybdenum, &c.

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[*] My old uranium prints may be toned by a very weak iron-bath, being taken out almost as soon as the slightest change of color commences.

Photographs may be formed, and *good* dark-brown or black photographs, by a deposition in the paper of almost any of the dark metallic sulphides; cobalt, antimony, and lead promise well; I have also got sufficient indications, with copper, nickel, &c., that with iron fades at once of oxidation, as many of them are likely to do sooner or later; but some of the sulphides *are certainly described as permanent* in the dry state by the authorities, and though I would not be too confident of them, they should have a fair trial. The protection of a little varnish or of albumen would give them a better chance. There is yet another class of photographs about which I would write to you, but my time fails, as will also probably your space in the Journal.

C. J. Burnett.

From The Jour. of the Pho. Soc.

ON POSITIVE PRINTING.

BY J. B. HOCKIN, ESQ.

Meditating some time since on the enormous quantities of both silver and gold consumed in the various photographic processes, and the very small amount recovered from the residuary liquids, I was induced to undertake a short series of experiments with the view of ascertaining the quantity of those metals concerned in the production of a given number of pictures, the proportion remaining in the same when finished, and how much might be extracted *economically* from the various liquids employed in their manufacture.

The following are the results I have obtained, and the deductions which I think may be drawn therefrom.

I prepared six fluid ounces of solution, which on analysis yielded me an amount of chloride, equivalent to 90 grains of nitrate of silver to the fluid ounce. On this I excited, by floating, 16 papers, 9×7, Towgood's manufacture, salted by immersion in a 12-grain solution of chloride of ammonium. These absorbed exactly 2 fluid ounces of liquid. The residue being examined, proved to contain only 77 grains of nitrate of silver to the ounce, thus showing that, independently of the loss in the two fluid ounces, the four remaining were reduced to the extent of 13 grains per ounce. The calculation therefore stands thus; 6 fluid ounces containing each 90 grains, equal 540 grains; minus 308 grains contained in the residue, give 232 grains of nitrate of silver used in exciting the paper.

These, after printing, were treated in the following manner:—They were first immersed from four to five minutes each in a solution consisting of hypo 2 ounces, water 6 ounces; washed in a stream of water for one minute then immersed until toned in a similar solution containing half a grain of chloride of gold to the fluid ounce. No more than six were fixed in 8 ounces of the first bath, nor more than 9 in the second, for reasons which will appear in the sequel. The quantity of chloride used was 20 grains, equal to 10 of metallic gold, as I found that for each picture of that size, at least 1 grain is required to produce a good purple-black color.

On burning one of the finished pictures, which, having been somewhat lightly printed was rather wanting in detail, and treating the *cinder* with nitric acid, I was somewhat astonished to find that it gave me a scarcely perceptible trace of silver when tested by hydrochloric acid.

I therefore exposed another paper to the light, without any negative over it, until it became nearly "bronzed"; then fixed and toned it like the others, and carefully washed and burnt it. The cinder was treated with somewhat dilute acetic acid and washed. The residue was then acted on by hot dilute nitric acid, carefully washed free therefrom, and the liquor collected. The residue, on being ignited with pure nitrate of ammonia and washed, left absolutely nothing but pure metallic gold, 0·06 grain. The nitric solution subsequently precipitated by hydrochloric acid gave the same quantity, viz. 0·06 grain chloride of silver.

The various hypo liquids were saved, mixed, and precipitated by an excess of sulphide of ammonium; the precipitate was collected, treated with strong nitric acid in excess, then by aqua regia, evaporated nearly to dryness, and washed with abundance of water. The insoluble remainder, consisting of chloride of silver, was fused, and found to weigh 116 grains, equivalent to 137 grains nitrate of silver. The liquid filtered therefrom and treated with protosulphate of iron deposited 4·60 grains pure gold. Two pictures having been over-printed acquired fine tones in the gold bath, but the whites were not sufficiently clear; they were therefore returned to the first bath, wherein six pictures had been fixed; on the following morning they were found to be perfectly sulphuretted, the whites having become of a deep yellow, but on being floated for an instant on a 5-grain solution of cyanide of potassium, the whites were perfectly restored, and the dark color but little impaired.

From the above facts I draw the following conclusions:—

1st. That in using a paper salted with 10 to 13 grains chloride of ammonium to the ounce, it will be necessary to add to the bath 3 to 4 grains of nitrate for every 60 square inches floated thoreon; otherwise, after exciting a dozen papers on a bath containing only 40 grs. to the ounce, it becomes so reduced that the paper is enabled to take up all the silver from the liquid with which it comes in contact. This may very probably answer a question which has frequently been put lately, and never yet been resolved, viz.:—What is the cause of a voluminous curdy precipitate which sometimes occurs in old baths used to excite albuminized papers? My opinion is, that with a highly salted albumen and a very weak bath, you abstract all the silver from the stratum with which contact is made; this unable any longer to coagulate albumen, dissolves it; the solution gravitating, comes in contact with the silver solution beneath, and becoming coagulated, precipitates.

2nd. The sulphuration of the two pictures left in hypo contaminated with silver salts is also highly instructive, and although long known, is very generally neglected. Whether the cyanide by removing the sulphur in the state of sulpho-cyanide will arrest the fading of such pictures, is a question, which time only can decide; I am disposed to think favorably of it, and shall try it.

3rd. That inasmuch as little more than half the quantity of gold and silver employed was extracted from the hypo, I would recommend all photographers to use the means of precipitating them, described below; also to keep not only the hypo, but all the first waters used in washing. It would be highly desirable to discover a method of deriving more benefit from the use of chloride of gold. One grain is consumed in doing work represented in the picture by 0·06 grain of gold, equal to 0·12. chloride.

4th. I am quite of opinion that if the photographic operator were to carry out the following system carefully, he might recover a very large per-centage of the precious metals he now loses:—

The liquids used in developing and washing the collodion plate should be allowed to run into a large tub communicating with the cistern by means of a pipe reaching to the bottom; the overflow should take place from the top; a little common salt may be added from time to time. It is a very remarkable fact that these liquids when allowed some time to rest are totally free from silver in solution, the pyrogallic acid alone appearing to reduce it. It will however be as well to keep a little salt in the tub, as time is necessary for its full decomposition by the organic matter. Into this tub no cyanide or hypo may be admitted. The plates must be fixed in a bath of these, and the washing-off conducted at another place. When they become saturated, they may be added to the hypo liquors and the first-wash waters, preserved in a large tub at a distance from the laboratory if possible, and the silver and gold precipitated therefrom by passing a current of sulphuretted hydrogen into them, or by the addition of a solution made by boiling one pound of lime with one gallon of water and half a pound of sulphur. The various deposits may be collected on a cloth, dried, and reduced by fusion with the dry carbonates of potash and soda, or sent to the refiners, who perform the operation for a very small sum.

From the Jour. of the Phot. Soc.

MANIPULATION WITH THE SINGLE-LENS STEREOSCOPIC CAMERA.

July 2, 1857.

To the Editor of the Photographic Journal.

Sir,—In the May Number it was explained how it is necessary, in mounting stereoscopic prints which have been printed form a pair of negatives on one plate taken in a camera fitted with two lens, 2½ inches apart, to cut asunder and transpose the right and left pictures. But by far the greatest number of stereographs are taken with the camera fitted with a single lens; and with it, it is easy so to take the pictures on the negative plate that the prints from it require only mounting as they are; and do not, like the pictures, of the two-lens camera, require cutting and changing of sides, at the best a necessary evil, increasing liability to error.

I will now state the simple rules to be followed. When one stands at the back of the camera, taking a stereoscopic portrait or view, and with the dark frame holding the glass plate in its position, let the part of the frame to the right hand be termed the right cell, and that to the left hand the left cell.

1. Expose the right cell at the left position of the camera; and, *vice versa*, the left cell at the right position.

2. For a negative, observing rule 1, put the plate into the dark frame with the collodion film towards the lens or front. Direct positives intended to be seen through the glass backed with black varnish or velvet, are taken precisely as negatives are.

3. For direct positives to be seen with the picture on the surface of the glass towards the eye, place the dark frame so as to have the collodion film at the back, the lens to impress *through* the glass plate; and follow rule 1.

By being thus taken *through* the glass, portraits have the correct aspect, together with the brilliancy derived from a surface film; for which last advantage, portraits taken by rule 2, are so generlly seen with inverted sides; needlessly giving the defect characteristic of the daguerreotype. P. C.

From the Journal Phot. Soc.

SUGAR PRESERVATIVE PROCESS.

Clifton, July 14, 1857.

To the Editor of the Photographic Journal.

Sir,—Having met with many failures and disappointments by the oxymel process, arising especially from the formation of a sort of net-work of reticulation over the surface of the picture, I have been led to make some experiments which have resulted in my employing a solution of moist sugar as a substitute, and by which means I find this defect entirely obviated. The formula I have finally adopted is—

Brown sugar	2 ozs.
Water distilled	4 ozs.
Acetic acid (Beaufoy's)	½ oz.

Mix and filter.

I think it advisable that the syrup should be placed in an upright bath, and that the plate being immersed should be frequently moved up and down in order that the syrup may more readily unite with any water that may remain upon it. After exposure, the plate requires considerable soaking in water to wash away the syrup, as if any portion of it is allowed to remain, it will cause stains in the development. I have found half an hour about the required time, but if the plate be placed in a tray of warm water, the syrup will by that means be more perfectly got rid of, and of course in a much quicker time.

Plates prepared with this syrup give first-class negatives, as regards definition and intensity, developing perfectly clear and spotless, and entirely free from anything approaching reticulation.

I may mention that on soaking the plate in water prior to the development, the image is slightly visible.

John H. Morgan.

From the Jour. of the Phot. Soc.

ON THE IMPURITIES FOUND IN SOME SAMPLES OF ETHER.

BY MR. JOHN LAMB.

Read before the Photographic Society of Scotland, July 14, 1857.

I beg to submit for the consideration of this Society the result of some experiments made with impure ether, supplied to me by a respectable firm in London, some months ago.

The density of the ether was ·730; it was perfectly *neutral* to test paper; the alcohol was the same, and of sp. gr. ·800; the cotton and iodide of cadmium were excellent. Collodion made from the above materials blackened all over on applying the developing agent (iron). I at first supposed that the nitrate bath was alkaline, although the fogging or blackening was unlike anything I had seen before. I added nitric acid to the bath in various proportions, without advantage. I evaporated the bath to dryness, and redissolved the crystals in water; still the reduction of silver was general on applying the iron, and without the plate having been exposed to light at all. My attention was now directed to the collodion:—I added to it free iodine, free bromine, sulphuric, nitric, acetic, and formic acids, respectively, to no purpose; then I tried ammonia and the carbonates of potash and soda separately, with no better success. Thinking the dense fogging complained of might depend upon the presence of essential oils in the ether, I added a few of them separately to *good collodion*, with no evident result, neither could I induce the blackening by the oils or any of the above acids or alkalies. I afterwards added fluoride of potassium to a small quantity of the collodion, which arrested the blackening, but produced, in a day or two, an effect equally injurious, viz. a spotting over the picture, which looked like iodine specks or stains. This took place only in positive portraits; *negatives* taken with it, *never* spotted. They also had more opacity in the lights, but the fluoride diminished the sensibility of the film; at the same time it completely *absorbed all free iodine*, and remained perfectly white as long as I had a drop remaining, which was over eight months, if the collodion was iodized with iodide of cadmium. I therefore consider the addition of fluoride of potassium to negative collodion to be of advantage where quickness of action is not required. After trying various experiments without success, to prevent the spotting which took place on the positive pictures, I determined to redistil the collodion; this I did with complete success: I not only got rid of the blackening but spotting also. I then directed my attention to the improvement of the remainder of the unused ether; I first redistilled it, but still the dark fogging appeared on applying the developer; I subsequently redistilled it off fluoride of potassium, quick lime, carbonate of potash, ivory-black, and bromine, respectively, with no improvement; at last I tried iodine and found it all right, saving the color thereby imparted to it, but which I got rid of by mixing a small quantity of ivory-black with the iodine and ether previous to redistillation.

That the cure of the collodion by redistillation, as before mentioned, depended upon the iodine in the iodide of cadmium being set free by the heat, I think apparent, as we find the same result taken place from the action of free iodine on the redistillation of the impure ether. How it did so, or what combination took place with the existing impurity, or what that impurity was, I cannot tell; some of the Members of this Society, more versed in the complex chemical changes which take place in ether, may be better able to point out the probable cause of the dense fogging, and also give an intelligible explanation of the *modus operandi* by which the iodine removed it.

I have pointed out a mode of cure which may prove useful to some of my brethren in the art, who may now, or at some future period, be annoyed with the same cause.

Before concluding this paper, I would beg those who may be unfamiliar with chemical manipulation, to use the greatest caution, should they, from necessity or otherwise, be induced to try these experiments by redistillation of ether. In all these experiments I used a water-bath for setting the retort in, supported from the bottom by an iron ring an inch deep. I never brought the temperature of the water higher than the vaporizing point of alcohol, 173°

From the Jour. of the Phot. Soc.

ON THE PREPARATION OF PHOTOGRAPHIC PYROXYLINE.

BY T. F. HARDWICH, ESQ.

It is the general opinion of those who prepare large quantities of collodion, that filtering-paper makes better pyroxyline than cotton-wool, and Swedish paper has been recommended as a uniform and suitable material. Experience, however, has convinced me that no kind of paper can be depended on, and that sheets taken from the same ream will often vary. These differences are perplexing when we consider the similarity in composition of the several forms of fibre to which the name of cellulose is applied.

That different samples of paper cannot be made to produce corresponding results in the process we are now discussing, is shown in the following way:—Usually on placing the strips of paper in the nitrosulphuric acid, the temperature slowly sinks some five or ten degrees; but often it rises to a corresponding or greater amount. The resulting pyroxyline always differs in the two cases, and even more so than can be explained by the variation in the temperature. With one particular sample of paper, made from the best quality of rags carefully bleached, it was found that the temperature of the acid mixture rose so rapidly after a few hundred grains had been immersed, that red fumes were evolved, and the greater part dissolved with a hissing noise. Fragments of the pyroxyline picked out of the acid and washed, dissolved in ether and alcohol only partially, and produced a collodion which was remarkably fluid, and stuck tightly to the glass.

In these and other experiments the exact strength of the nitrosulphuric acid had been previously ascertained by analysis, and the mixture had been brought precisely to the formula recommended by Mr. Hadow. It became evident, therefore, that the published information was insufficient, and that something yet remained to be made out.

The importance of the subject justified a thorough investigation. Specimens of cellulose in its varied forms were therefore collected and compared. Cotton-wool, flax, dried pith, calico, linen, old rags, straw-paper, &c., were made into pyroxyline, and an equal weight of each dissolved in iodized ether and alcohol. The comparison of these different samples of collodion was instructive, seeing that all the pyroxyline had been made in the same acid and at one temperature. Some flowed with difficulty upon the glass, and speedily set in crapy lines, whilst others were almost as limpid as water. The structure in one case was tough and coherent, in another loose and powdery.

The material which appeared to supply every requisite for negative collodion in the most perfect manner was old cambric. Next to that, although differing in some respect, new and fine linen, such as is used for shirt-fronts: the film on the glass in each case was very smooth and even. Flax gave a result altogether different, the collodion being thick and glutinous, and agreeing more or less with that obtained from cotton.

The general inference drawn from the experiments was, that the raw material produced a pyroxyline different to that obtained from the fibre which had undergone bleaching and purification in the process of manufacture, and that in all probability the action of the alkalies which are used, had something to do with the result. To verify this conjecture, portions of flax, and also of fine linen, were boiled for some hours in a dilute solution of potash, and after proper washing converted into pyroxyline: the collodion so prepared was found to be unusually fluid and structureless.

The modifying action of alkalies upon the fibre having thus been clearly proved to influence the result, it became interesting to inquire whether the sulphuric acid used in the new process for making parchment paper would have a similar effect. Sheets of unsized paper were therefore floated upon properly diluted oil of vitriol, and, after washing and drying, converted into pyroxyline. The result was such as had been anticipated; a large quantity of the pyroxyline dissolved in ether without producing glutinosity, and the resulting collodion film was short and adherent.

Mr. Hadow has shown in his paper on gun-cotton, that sulphuric acid in combination with a certain quantity of water may be added to the nitrosulphuric acid used in making pyroxyline, without materially affecting the solubility or explosiveness of the product. It seemed likely, therefore, that the same effect which was produced by previously parchmentizing the paper, would be obtained by using a nitrosulphuric acid containing an excess of diluted sulphuric acid. The tendency of the cotton to dissolve in such a mixture is a hindrance to the carrying out of the process on a large scale; but it is a fact that pyroxyline so made is shorter in texture, and produces a more fluid collodion than the ordinary kind. The rule-of-thumb mode of mixing together oil of vitriol and nitric acid is not therefore sufficiently certain. A soluble pyroxyline may be so made, but the collodion will vary in contractility and general properties, according as the diluted sulphuric acid is present in greater or less quantity.

The anomalies complained of in the use of paper for preparing pyroxyline are explained to a great extent by the above facts. The paper is made both from cotton and linen rags, and these rags may be either new or old. Again they may be cleansed to a greater or less extent by boiling in alkaline leys, and all these points will make a difference. Linen previously boiled with potash, showed, like many samples of paper, a tendency to dissolve in the nitro-sulphuric acid; and with old calico rags nearly rotten by use, the same thing was observable. The pyroxyline made from fibre so modified seldom dissolves entirely in ether, but the resulting collodion is of the kind described by Dr. Norris as suitable for the dry processes, viz. very limpid in proportion to the number of grains used, and depositing a pulverulent substance on the addition of water.

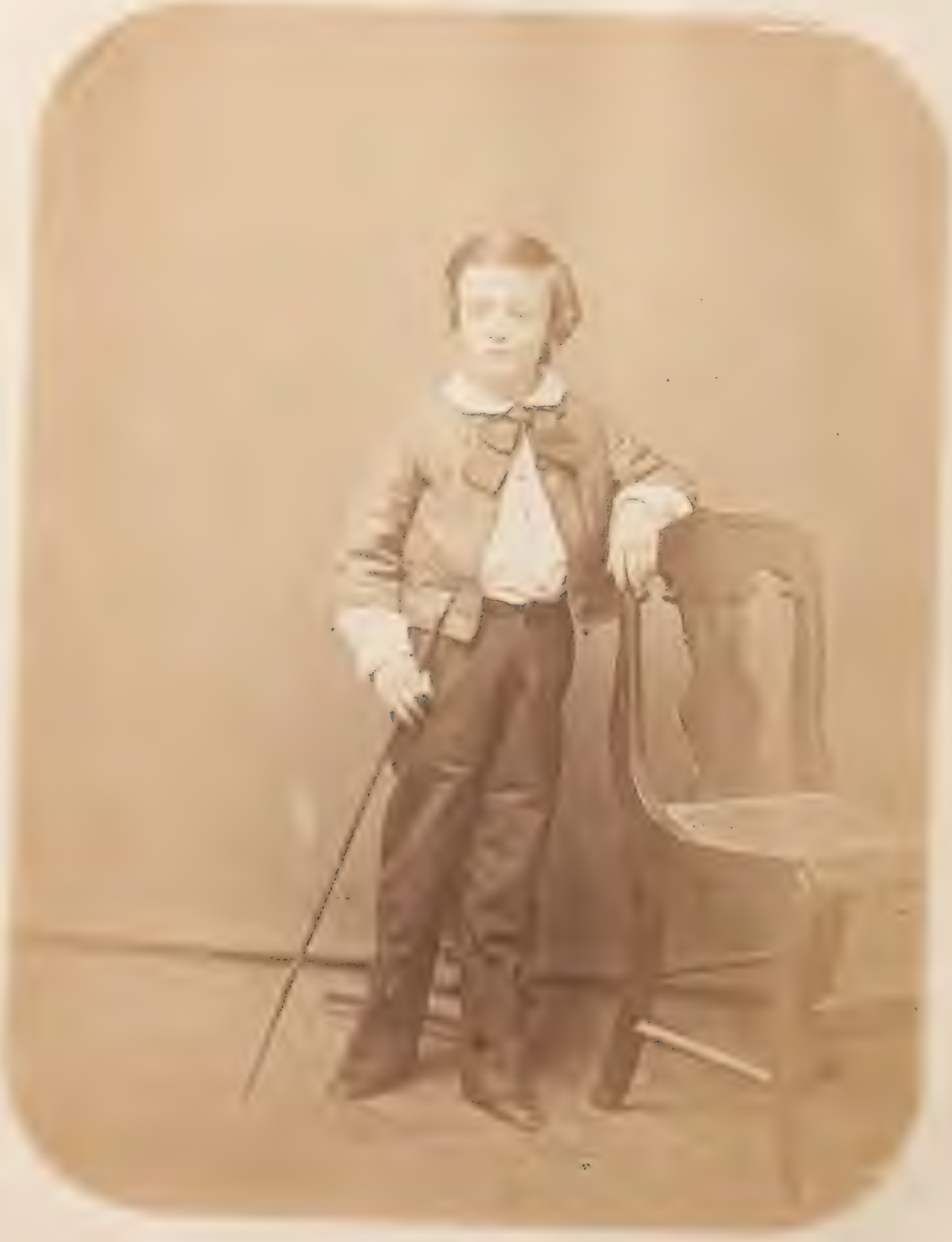
The series of experiments above detailed, have also convinced me that the strength of the nitrosulphuric acid may in certain cases be increased to a considerable extent without affecting the solubility of the pyroxyline in ether. With one sample of paper which resembled cotton in its reactions, a very slight diminution of the amount of water in the formula caused the product to be insoluble, whilst when the paper previously parchmentized by sulphuric acid was used, the pyroxyline dissolved partially in ether, even when the water was entirely omitted and the nitrosulphuric acid prepared by mixing equal bulks of oil of vitriol and nitric acid of 1·45. The formula

$$HO\ NO_5,\ 2HO\ SO_3 + 3\tfrac{1}{2}\ HO,$$

established as the best for making soluble pyroxyline, may therefore in some cases be departed from with impunity.

In the next Number I shall speak more fully of the properties of collodion prepared from fine linen and from the parchmentized paper.

Phosphate of Lithia.—Add phosphoric acid to a carbonate of lithia, warming the solution, when the carbonic acid will be expelled and the phosphate of lithia is precipitated in white flocks.



I.--MASTER GEORGE MARSH.

Negatives by W. H. Tilford.---H. H. Snelling, Print.

II.—THE FIRST CRADLE.

Negative by L. E. Walker.- H. H. Snelling, Print.

OUR ILLUSTRATIONS,

I.—MASTER GEORGE MARSH.

Negatives by W. H. Tilford.—H. H. Snelling, Print.

The wonderful precocity of this juvenile comedian has gained for him a world-wide reputation. Of his personal history we know nothing, and have not been able to keep sufficient track of his perigrinations to obtain it. Mr. Tilford has exhibited consumate skill in taking these negatives, and whatever faults the positives possess are due entirely to us, or rather to our printer, who has not yet mastered the manipulatory details, so as to enable her to obtain every point perfect. We have also to contend against bad paper, not yet having obtained a single ream in which the sheets were uniform—texture, sizing, thickness, and purity being variable, and as perfect salting depends upon all these things being uniform, and perfect printing depends upon the proper degree of salting, it will be understood why, in printing several hundred sheets, the quality of the proofs vary. The toning is also affected, as, according to the qualities enumerated, the same degree of toning will produce different results; requiring a nicety of judgment not to be found in every one.

II.—THE FIRST CRADLE.

FROM THE GROUP BY A. H. DEBAY.

Few persons, we imagine, who were attracted by the foreign sculpture exhibited at the Great Exhibition in 1851, will not remember, and with feelings of pleasure, the fine group sent from Paris by the sculptor, A. H. Debay, and entitled "Le Premier Berceau," or, to give it an English name, "The First Cradle." A cast from it is now in the Crystal Palace at Sydenham.

In England, it is not an uncommon occurrence to find young sculptors ignoring their art from the want of patronage, and directing their attention to the sister-art of painting; and in France, the reverse is not unusual. Auguste-Hyacinthe Debay is the younger son of Joseph Debay, and brother of Jean B. Debay,—all of them sculptors of considerable reputation, resident in Paris. Auguste was born at Nantes, but went at an early age with his father to Paris; studied some time under Gros, the painter, and commenced his artistic career in this department of Art.

In 1819, while a student in the *Academie des Beaux Arts*, he gained a third class medal in 1823, for the best historical picture—the first grand prize of Rome, as it is called, because, as in the case of the large gold medal bestowed by the Royal Academy, it entitles the possessor to proceed to Italy to study; and in 1831, a medal of the first class. In the *Palais des Beaux Arts*, at the Great Exposition last year in Paris, he exhibited three pictures:—"The Old Man and his Children," painted in 1835; "The Two Friends," painted in 1841; and the "Portrait of a Lady," painted in 1846. The only sculptured work he exhibited at the same time was that from which our photograph is taken. We know not when he commenced to practice the art of sculpture, but it is evident that he was engaged both on this and painting at the same time, for "The First Cradle," was exhibited at the annual *Salon de Louvre*, in 1845.

There is a novelty in the conception of this group that entitles it to the admiration of the amateur, over and above the manner in which the idea is carried out. The disposition, so to speak, of two young children in the lap of their mother, cannot be very easy of treatment; and yet M. Debay has placed them picturesquely and naturally. But we cannot help feeling, especially when we look at the group in profile, as in our photograph, that there is some sacrifice of grace in the attitude of our first mother, Eve—for she it is whom the sculptor has here represented: grace, however, is not a quality we generally expect to find in French sculpture—it has never been a characteristic of the school. "I remember," says Mrs. Jameson, "in the Greek Exhibition of 1851, being struck, as all were struck, by the wonderful elegance, fancy, and invention displayed in the French sculpture, including the ornamental bronzes—by the careful design and finished execution of the most minute, as well as the larger objects; but we were also struck by the predominance of the voluptuous and ferocious sentiment in some of their finest designs—the humane feelings, the moral sympathies, outraged on every hand. The appetite for sensation is as obvious in French Art as in their drama and literature—all react on each other."

In describing this group, the same discriminating critic remarks:—"Eve, our general mother, holds on her knees, and encircled in her arms, her two sons, Cain and Abel, who slumber with their arms entwined in each other. The heads of the two children are well discriminated in character. Cain seems to frown in his sleep; Abel has the soft, pure lineaments which the early painters gave to the heads of the infant Christ. Eve, bending thoughtfully and fondly over them, seem to anticipate their future fate. A group of extraordinary talent and power, both in conception and treatment. The form of Eve has all the amplitude and vigor which ought to characterise the first parent; and thus Michael Angelo has represented her. On the pedestal are three small bas-relief from the history of the two brothers."

It is quite unnecessary for us to add anything to the above remarks, which comprehend, in a few words, the leading features of this fine group.

From the Liverpool Photographic Journal.

POSITIVES ON GLASS.

BY M. LE GRICE.

In the July number of the French Photographic Society's Journal, M. Le Grice, states, that, he has for some years studied the production of direct positives upon glass, and he has at length adopted a process which gives favorable results with ease and certainty. His pictures have the strongest lights well rendered, without presenting a metallic aspect. The pure whites preserve their modelling although properly contrasted with the deep shadows. The muscles of the face are well marked, a thing rare in paper portraits, which are chiefly set right by the hand of the artist.

All simply iodized collodions free from bromides, fluorides, &c., and a bath unimpregnated with iodide of silver give pictures which are simply black and white, having neither half tint nor modelling. Hence the various additions to a normal collodion and bath. That combination which I have found to succeed best, says M. Le Grice, is one which has been for some time in use in Germany. It is as follows: mix in a flask, *cautiously*, five grammes[*] of bromine, and twenty-five grammes of absolute alcohol. Then pour this mixture into another flask containing five grammes of hydrated lime (slaked lime); stir, and add from twenty to twenty-five drops of hydrochloric acid. After a few days the liquid which rests upon the undissolved lime, loses its color and becomes clear as water. In this state it is used by adding ten, fifteen, or twenty drops of it to a collodion iodized by iodide of zinc. It is believed that a collodion containing this mixture is more sensitive than any other to the rays which proceed from red and yellow objects.

The image is rendered visible by sulphate of iron, with the addition of boric or acetic acid, and two or three per cent. of alcohol. The fixing is effected by hyposulphite of soda, or by cyanide of potassium.

To obtain negatives with this collodion, expose for a longer time, and after the image is fixed and washed, moisten it with a weak solution of nitrate of silver, containing just a trace of iodide of silver. Then expose the plate to a very feeble diffused light for a moment, and without washing plunge it into a solution of sulphate of iron, as above; wash again, &c. By this method we obtain negatives in which the half-tints are more marked than in those obtained by an ordinary negative collodion and developed by pyrogallic acid. A too long exposure to the diffused light sometimes causes the image to be transformed into a positive, as seen when examined by transmitted light. The same thing also occurs when the solution of nitrate of silver with which the plate is, in this additional process, moistened, contains too much iodide of silver.

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[*] 15½ grains the gramme.

From the Jour. of the Phot. Soc.

PHOTOGRAPHIC SOCIETY OF SCOTLAND.

ORDINARY MEETING, July 14th, 1857.

W. Walker, Esq. in the Chair.

The Minutes of the preceding Meeting were read and approved.

The following gentlemen were balloted for and duly elected Ordinary Members of the Society:—Mr. John Lamb, Mr. Finlay Anderson, and Mr. David Macgibbon.

Mr. Cosmo Innes read "An Account of a Tour round the Coasts of spain with a Camera*," illustrated by calotypes taken by himself.

Mr. Colin Sinclair read "An Account of Experiments on the various Adhesive Substances used in Mounting Photographs, as affecting the permanency of the prints" (see p. 337), and exhibited the photographs experimented on.

A communication was read from Mr. Lamb "On the Impurities in some samples of Ether" (see p. 141).

Mr. Tunny exhibited pictures printed on glass, parian and porcelain, by his newly discovered process of "Vitroheliography." These pictures might be looked at as transparencies, or in the ordinary way.

Mr. M'Craw also showed specimens of a process giving very similar results to those of Mr. Tunny, and which he intends to patent under the name of "Vitrotype."

After the exhibition of these,

Mr. Burnett remarked that he had been long trying to stir up photographers to immortalize their works on porcelain, glass, and similar imperishable materials. He was much pleased, as must be all present, to see the interesting specimens now exhibited; although, as he had often hinted, and as these photographs showed, by suitably preparing the surface of the porcelain, &c., for the reception of an ordinary photograph (or for one of another nature), and after vanishing it as a protection against damp, wet or other sources of injury, one might produce tolerable or very good photographs, and find glass and porcelain, and allied fabrics, in some respects a convenient support for a photograph; yet, to give photography on such materials its *only* real, peculiar and characteristic value, the photograph *must* be burnt-in. The great difficulty in this, and the main cause of failure of the attempts at burnt-in photography which had hitherto been made, proceeded from the change of color which the silver photograph underwent in the process of burning, becoming yellow in most cases. Nothing stood more in the way of photographic progress here, as well as elseywhere, than the delusion which photographers seemed to be possessed with, that everything must be done with silver. Uranium, cobalt, chromium, antimony, lead, copper, titanium, tungsten, molybdenum, gold, and many other substances were all likely to be much more extensively useful in photography on porcelain, tiles, glass, and other vitreous and ceramic material, than silver was. In such photography he must lay it down as a law, that we must direct our attention exclusively to the color which the substances of which the photograph was composed would assume *after* the process of burning, *not* to that which they had *before* burning. It would be found that the two were seldom the same, and generally entirely different. He then read a few remarks on the various modes of application to the surface of the fabrics, and the suitable chemicals for a true burnt-in photograph on porcelain, glass, &c., and concluded by mentioning that he had been engaged for the last two or three years in a rather extensive series of experiments with different substances, partly to try whether he could not, for our ordinary paper prints, get a less costly material than silver, and one more to be depended on for permanence, but also in a great measure with a view to photography on glass, porcelain, and allied undecaying materials. Mr. Burnett then exhibited a few specimens of photography with copper, manganese, cobalt, iron, molybdenum, &c., as well as some specimens of old ink-processes of different natures, and remarked that, in ink-processes, he had found a mixture of tannin and carbonate of ammonia a much better developer than gallic acid. He had tried development of bichromate and iron paper; but the best results which he had got were from the honey, with tannin and the ammoniacal carbonate, of the blue pictures, produced by the cyanotype of Sir J. Herschel, or allied processes with ferridcyanide of ammonium, hydroferrocyanic acid, &c. These processes were, however, too slow to be recommended; and with the bichromate and iron he had not been so successful as M. Sella. He had given up his ink experiments long ago, from understanding at the time that the ground had been already gone over by others but he would advise those now experimenting on M. Sella's process, to try the mixture of tannin and carbonate of ammonia, as a developer, instead of gallic acid; also the use of a *very minute* addition of acid or acid salt, say of bitartrate of potash, to the water used in washing out the iron-salt.

The Society then adjourned till November.

PATENT FOR THE ORNAMENTATION
Of Metals, and for Printing by Photography.

From the last number of the *Repertory of Patent Inventions*, we learn, that Dr. Cheetham, of Rochdale, has a patent for "Improvements in the Application of Photographic Pictures to metal and other surfaces, and in rendering the same applicable as Printing Surfaces." The invention relates, firstly, to obtaining designs upon copper and other metallic surfaces, so as to constitute pictures, which may so remain for ornamental or other purposes, or upon which the engraver may work by any of the usual methods. The principle proceeded upon is to obtain a photograph by any ordinary means, and then to transfer the reduced silver or other substance composing it, to the copper or other such surface, in such manner that it shall be free from the film which supported it, and in direct contact with the metal.

The method adopted is this:—In the first place obtain a collodion photograph, and while this is wet upon the plate apply to it, by pouring or otherwise, a varnish composed of shellac dissolved in water by the aid of borax, say one part of borax, three of shellac, and ten of water, but the exact proportions are not important; when this is dry, a piece of paper painted with the same materials is applied wet, and the whole allowed to dry, after which the plate is placed in cold water, and the film will then separate from the glass. Now take a sheet of copper or other metal and coat it with mercury, after any of the usual methods, and upon this place the film; pressure being then applied simply by rubbing or by any ordinary press, the silver constituting the picture will adhere to the mercury, and upon a gentle heat (the amount of which will easily be ascertained by practice) being applied the film will be separated therefrom, leaving it perfect upon a metallic surface. The picture thus transferred may be used as a tracing for the guidance of the engraver, or it may constitute a permanent design upon ornamental or other metallic articles. Copper is particularly alluded to, but zinc, silver, steel or other materials may be employed, and these may be first coated with copper by electro-metallurgy, then treated as above, and those parts of the copper not covered by the picture subsequently removed by acids or by other means. As a variation, the film with its picture may be removed from the glass by the use of a solution of gutta-percha in benzole, as now practised, and applied to the mercurialized metallic surface; but in this case the film must be removed by dissolving it in methylated [spirit] chloroform or other solvent, and the mercury may then be driven off by heat if desired. It will be observed that the picture is not caused to adhere to the metallic surface by any glutinous substance such as gum or varnish, but is connected therewith by the mercury, after the ordinary manner of gilding.

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* The abridgment of Mr. Innes' paper has not yet been received, but will probably appear in the next Number.

Another part of the invention consists in a method of obtaining, by means of photographs, surfaces for printing from. For this purpose proceed according to the first part of the invention as above described, so as to obtain the silver picture upon a surface of copper or other metal, and then treat the plate with an agent, such as nitric acid, which will eat away one portion of the surface and leave the other in relief.

Another part of the invention relates to obtaining printing surfaces upon the lithographic principle. To effect this the stone is rendered a conductor of electricity by a coating of phosphorous or other suitable substance, and a film of copper or other metal is deposited thereon; upon this the photographic design is transferred and the bare copper or other metal is dissolved away; the stone which was beneath this is then run over with the ink roller, and the metal picture subsequently removed, leaving a clear surface of stone for the light portions; or this operation may be reversed.

From the Liverpool Photographic Journal.

M. BAYARD'S PROCESS FOR TRANSFERRING COLLODION TO PAPER.

In our report of the last meeting of the French Photographic Society allusion was made to M. Bayard's transferring process, of which we now give an account, together with some further remarks by Baron Gros on the same subject.

Make a solution containing about four per cent. of gelatine, and pour it, while warm, into a warm dish. Float Canson's thin negative paper upon this bath for about two minutes, or until the paper has become quite flat upon the liquid, then remove the sheet, and suspend it by one of its corners to dry. The papers so prepared may be kept good for some time.

To remove the collodion film, or the negative image, plunge the plate, either moist or dry, into a flat dish of water. Then take a sheet of the gelatine paper, of the size of the glass, and float it upon the water which covers the collodion plate; then, as soon as the paper has become quite flat, or in about three minutes time, lift up the plate in such a manner that the floating sheet shall be removed, leaving the latter in perfect contact with the collodion film. Now drain away the water as completely as possible, and leave the whole on a level place to dry.

In place of immersing the plate, water may be poured upon its surface, and the gelatined paper, previously moistened on a separate bath, be then floated on, and the water allowed to run away from between the gelatine and collodion surfaces by simply inclining the plate. It is a question whether the plate will be best dried by placing it horizontally or perpendicularly.

For an old and unvarnished negative adopt the plan of soaking in a dish for some twenty minutes; then float on the paper, and proceed as at first directed. For a varnished negative add about four per cent. of alcohol to the water in which the plate is immersed, and let the soaking be continued for half an hour.

The compound plate, when dried, is taken, and an incision made in its surface all round, and close to the edge of the glass. It is then immersed in a shallow dish of water, to render the gelatine pliable. After a quarter of an hour or so, you may begin to raise a corner of the paper by the point of a knife, the plate being still in the water. If the film still adheres to the glass, continue the soaking until a perfect separation can be readily made, the plate always remaining in the water to keep it moist. Finally, press the separated joint sheet and film in blotting paper, and leave it to dry. Should the negative appear to be too intense, waxing must be resorted to.

M. Bayard successfully performed the transfer experiment before the French Society, upon a negative lent by M. Legray, and which was supposed to be unfavorable for the operation. Much interest was excited by an examination of the numerous specimens thus transferred.

Baron Gros observes upon this process, that the positives from such negatives are reversed as to right and left, and admits that, by placing the collodion side of the transfer uppermost in the copying process, this difficulty may be overcome, but with the loss of sharpness of the original image. He therefore suggests that, for transfers, the collodion plate must be impressed through the thickness of the glass, and he anticipates that even still greater purity in the result will be obtained, in consequence of the perfect nature of the collodion surface, which is moulded upon the *polished* surface of plate glass. This mode of procedure was never considered fatal to the success of the paper processes, where glass was necessarily interposed between the sensitive surface and the image formed by the lens. But, as the glasses vary in thickness, great care must be taken, so to arrange the frame, with relation to the ground glass, that perfect exactness of coincidence shall always be obtained. Baron Gros expects that a greater delicacy of detail, and a better gradation of tint, will be found to belong to positives obtained from such negatives. The obvious saving of transport, and the avoidance of the dangers which attend the use of glass, incite one to further trials in this direction. The glass and paper should be of the very best quality to ensure the greatest possible degree of perfection and convenience. Of course, by means of a prism, the image might be at once thrown in a suitable manner upon the plate, but it seems desirable, first, to see if the method above proposed may not be in all respects preferable. To be able to operate [rapidly] with dry collodion, and then to have the means of transferring the negative to paper, would be a real advance in practical photography.

From the Liverpool Photographic Journal.

TANNER'S WET PAPER PROCESS.

Upon the first appearance of Mr. Talbot's calotype patent, the late Mr. Robert Murray sent a brief account of the specification to his friend, Mr. Tanner, who was at that time on the continent. Mr. Tanner soon found that with foreign paper it was not possible to adhere to the directions given by Mr. Talbot, whose experiments had of course been made on English paper. Mr. Tanner, being a chemist, was soon enabled to modify Mr. Talbot's process in such a way that French and German papers could be used; the results have the advantage of being obtained in much less time than when English paper was employed. Portraits were taken from time to time and sent to England, to the astonishment of some few who considered the calotype to have become of doubtful utility, as far as portraiture was concerned. Mr. Tanner taught his process to M. Blanquart Evrard, of Lille. Some time afterwards, Mr. Tanner and his friends were surprised to find that M. Blanquart Evrard had published a photographic process on paper which was scarcely even a modification of Mr. Tanner's, and this without the slightest acknowledgment of the source of his apparent skill. The French press soon hailed M. Banquart Evrard as a discoverer! and yet he took no pains to undeceive the French public. At length M. l'Abbé Moigno, in his *Repertoire D'Optique Moderne*, set matters to rights, and related the history of M. Blanquart Evrard's tuition. So far had matters gone that even M. Talbot had to reclaim against the astounding assumptions of the French press. The whole of photography on paper, in a practical sense, was supposed to be due to France! But we must here do M. Blanquart Evrard the justice to say that he has informed us that *he* never thought of claiming the invention of Mr. Talbot, and that he only took credit for popularizing, that was the word, the invention in France. Still not a word about Mr. Turner. Was this ingenious M. Blanquart Evrard? *We* had to learn from the Abbé Moigno first, and then from Mr. Tanner himself, the true history of this transaction. Those who, like ourselves, are fond of recording the *true* history of inventions and improvements, will understand with what sort of feelings we cancelled the notes which resulted from our early conversation with M. Blanquart Evrard.

Mr. Tanner's process is simple. We take French, or the so-called German paper of Messrs. Linneman and Flinsch, of Frankfort, which paper we have been informed is also of French manufacture; and steep it for some minutes, from ten to twenty, in a solution of *pure* iodide of potassium. We then suspend it to dry, attaching a piece of blotting-paper to the lower part of the sheet, so as to drain away the excess of liquid. The paper, when dry, is ready for use, but may be kept some time in a well-closed portfolio. To make it sensitive we prepare a solution of aceto-nitrate of silver, of about thirty to fifty grains to an ounce of water, with one drachm of acetic acid. This solution we pour out upon a piece of glass, which is larger than the paper to be made sensitive; we then float on the paper and leave it to soak for three or five minutes. In the meantime we place upon a slate, or upon another sheet of glass, a piece of wet blotting-paper, with quite an excess of water upon its surface. We now take the sensitive paper off the first glass and apply its back to the wet blotting-paper, to which it adheres perfectly. We allow the whole to drip for a moment, and then place the slate, or glass, and paper into the usual plate holder. The paper, it will be observed, is directly exposed to the lens; but glass may be interposed if for any reason the plate must be long kept before using. M. Martens' best early paper pictures were obtained without the use of the second glass. After the exposure in the camera, which should be as soon effected as possible, the paper is removed and placed face downwards upon a glass plate, containing a nearly saturated solution of gallic acid. The image soon develops, and is fixed in hyposulphite, and waxed, or *not*, in the usual way. A fresh portion of aceto-nitrate is then poured upon the glass, and another sheet prepared.

Such is Tanners process, as used by M. Martens and others; but here, as in other cases, additional agents have been combined with the iodide of potassium—bromide of potassium, chloride of sodium, cyanide of potassium, &c., have been employed in addition, and it must be confessed with apparent success. The pictures obtained in the latter case are more intense, though it is quite a question as to whether increased sensibility to either white or colored light can be obtained by such means. There is much room for experiment as to the time of immersion in the iodide, and the time to be allowed for contact with the aceto-nitrate. If we do not mistake, Mr. Tanner told us that some of his most sensitive papers were prepared by a *momentary* floating on iodide of potassium, followed by blotting off, and a contact of a *few seconds* only with the aceto nitrate. The particular sample of paper also must be taken into account; and, as the elements of the process are so few and simple, no one can object to make a few preliminary experiments with the paper and materials they may have at hand. The salts, mixed or simple, should be in the proportion of 500 grains to a pint of distilled water The nitrate of silver solution may be as strong as fifty grains, but thirty should be first tried. We once found that a bath which had been used for some time to excite albuminized plates gave a more rapid result than a freshly made solution. The influence of organic matters over these processes is not sufficiently understood. The action of this bath was remarkable, but how shall we give directions for the preparation of one which shall be similar? However, by following the simple plan already described, successful results may be obtained. The only difficulty here, as in the Talbotype and wax paper processes, is to obtain a paper which shall be uniformly good in texture.

We shall, in a subsequent number, recur to this wet process, and give some additional formulæ, although we believe the essential details are contained in the account given above.

FAIR OF THE AMERICAN INSTITUTE FOR 1857.

PHOTOGRAPHIC DEPARTMENT.

The first thought upon entering the Art Gallery at the Crystal Palace this year is—what a revolution has the last two years made in the Photographic Art. Three years ago the Daguerreotype filled the walls; and to exhibit a fine picture on a plate 11x13 at that time was the acme of the Daguerrean's ambition. Then only a few meagre small size paper photographs—we may say—encumbered the wall, generally placed by the side of the daguerreotype as a strong contrast in favor of the latter, and, as it were, in derision of the former. How many then looked upon the exhibition and admired the exquisite softness, and minute detail of the daguerreotype and said in his heart, "photography now does it best—perfection has been attained. Can miserable shadows like those paper pictures ever overcome the prestige of the daguerreotype?"

Now, what is the result? Scarcely a daguerreotype is seen, and fewer ambrotypes. Photographs on paper and canvas from the miniature to life size, eclipse every other photographic style. The improvements effected during the last two years, are truly wonderful.

Turn we back to 1851 when we first issued the *Photographic Art Journal*—read over what we then said of the photographic art, and what we predicted, and then turn again to the Photographic gallery of the American Institute for 1857, and consider how far we were then in our ideas from the results of the present period. How many of the artists who exhibit life-size photographs to-day, who did not laugh at us then for telling them that they would live to see what is now adorning the walls of the American Institute. Not one of all these exhibitors who did not, at that time, tell us that we were dreaming of an impossibility. But we say now, as we said then, photography is very far from perfection. Compare the colored—for we cannot yet say they are painted—photographs with the productions of our Church's, Elliott's, Huntingdon's, Pages, and a host of other painters, and we can but turn, in disappointment, away. Yet the colored photograph has an advantage over the best works of the best Art-masters—for the latter cannot rival the former in truthfulness to nature. The painter can produce a picture that will please the eye and flatter the mind; but the photographer can do more, he can please the heart. He should not, however be satisfied to stop here; nor until he has done both. That time must surely arrive. It will not be until less of the man and more of the poet is developed in his nature—he must be educated to art more than to dollars and cents.

The large majority of the pictures exhibited this year, only goes to prove—what we have stated years ago—the assistance to be derived from Photography by Fine Art. We cannot call the colored and retouched pictures, photographs. Under the brush they lose their identity entirely. For whatever excellencies they possess, they are indebted to the painter and not to the photographer, and we regret that the artist has not been permitted to attach his name to each picture, that we might give the credit for whatever skill is evinced in its execution to whom it belongs. We cannot consider that the exhibitor should receive all the praise. It should be divided according to merit. The exhibitor is simply entitled to praise for the enterprise and public spirit and energy with which he has pursued the practice of the Art, and for the state to which he has brought it, while the painter deserves equal commendation for the degree of excellence in which he has executed his part of the work. We shall therefore say but little in regard to the colored pictures as works of Photographic Art.

On entering the gallery at the Crystal Palace we turn to the left and were first met by quite a large display of photographic views of American scenery by Mr.

S. A. Holmes.—Some of these pictures are good in some points; but quite deficient in others. Good judgment has been used in the selection of "point of sight," and the perspective is generally correct; but, with three or four exceptions, they are not sufficiently clear. The foregrounds and foliage want detail and are thick and heavy; or to borrow an expression, "matted." The best in the collection—or what struck us as the best—were one view of the Niagara Suspension Bridge, Brock's Monument, one of Niagara Falls, a Street View, a View of a Country Residence, and the Washington Monument. The next presented to us were a few views by

Hufnagel & Co.—These are the best landscapes in the exhibition. Clear, well defined, well toned, and well selected We are unable to designate by name any one as superior to the others. A Street View, however, pleased us very much. Messrs. Hufnagel & Co., also exhibited a new nitrate bath, which we consider of decided merit. The rest of this wall of the gallery is filled with architectural designs and mechanical drawings. We turn to the right and are met by a profusion of monocromatic abortions, fit only for the vulgar taste.

C. D. Fredericks then presents us with a very large collection of pictures in every style of the art, so far as portraiture is concerned; paintings in oil and water colors, pastels, untouched and touched up photographs, hallotypes and ambrotypes. As no names are attached to any of his pictures, we can designate but few of those with which we were most pleased. Of the life size paintings, the portrait of an old gentleman and that of the huntsman and dog, are deserving of special mention. Among the cabinet size in oil, water colors, and pastel, were many delicately executed and well colored pictures. His plain photographs are all very fine, while we consider his Hallotypes, as a general thing, the best in the exhibition. Mr. Fredericks is much more profuse in the variety and styles of pictures than any other exhibitor, and we should think that man very difficult to please who could not be suited at his gallery.

Meade & Bro. have but few specimens on exhibition; but they decidedly possess excellencies not surpassed. The portrait of Mr. Charles R. Meade, possesses merit of a higher order than colored photographs usually do. The drawing is bold as excellent, the position well taken, and the coloring fresh, natural and artistic, possessing none of that chalkiness so prevalent among works of art of the present day. Several others possess equal merit, while one or two are below par, and we are surprised that the same artist could have executed them. The photographs on silk are not so good as those exhibited last year.

Mr. J. Gurney comes next with a formidable array of portraits, but we shall have to content ourselves with a general review for the same reason as in Mr. Fredericks case—want of names. The colored life and cabinet pictures fully sustain the reputation he acquired from the exhibition of last year; the style of coloring being precisely the same. The retouched photographs compare favorably with those by other artists, and there are points of excellence about his plain pictures that cannot be excelled if equalled. They are clear, sharp, round, well preserved in detail, with the light and shade skillfully managed. In addition, they possess a transparency and softness in tone and color too often neglected by photographers. The full length life size photograph is very fine in strength, position, and detail, but poor in color. Some of his Hallotypes are fine; but he has been too much afraid of color in others, giving them a cadaverous appearance. We were pleased to see that he had not entirely neglected the daguerreotype. His specimen frame exhibits many gems of this now almost—undeservedly—repudiated branch of the art.

M. B. Brady.—One of the oldest soldiers in the art is behind none, either in quantity or quality, and decidedly ahead of all in plain full-length life-size photographs. We shall dismiss his colored pictures with the simple remark that of the majority, the same may be said that we have already said of other pictures by other artists. His Imperial pictures are certainly the best, in many particulars, on exhibition. The exceptions would be by artists. While the effect produced is most exquisite, they are wanting in—as a general rule—the delicate touches of those by Fredericks—but it is in this very particular their excellence consists. In applying water colors, or india ink to paper, a different style of skill is required to produce the same effect as upon ivory, bristol board or canvas, and Mr. Brady's artist possesses this skill to an eminent degree. The untouched photographs are very fine, particularly those of Professor Morse, Mr. Anthony, James Gordon Bennett, N. P. Willis, Dr. Rae, &c., although they do not possess that transparency characteristic of those by Gurney. Mr. Brady, however, is certainly the Ajax in plain photography. He exhibits a group of *three full length life-size* on *paper five* feet by *seven*, as remarkable for its excellence in color, tone and detail, as it is in size. When we reflect upon the difficulty of handling a sheet of paper of such a size, the care required in nitrating and toning, we cannot but be surprised at the perfection of the result. We noticed in the whole sheet but one slight blemish caused by a tear. We should not have been disappointed to have seen more, and we were agreeably surprised that there were not. This result gives the palm to M. B Brady. He also exhibits a retouched full length portrait of Mad. Friziolini which is very good.

M. M. Lawrence exhibits very few photographs, either colored or plain; but quite a large number of Daguerreotypes. Mr. Lawrence hangs his faith still on the daguerreotype, and he can be justly proud of his achievements in this branch, for he is excelled by none. In photography he has made very little exertion, in consequence of a long series of fits of illness that several times have brought him to the brink of the grave. His efforts, however, prove of what he is capable, were sufficient health and strength given him to permit that devotion necessary to the subject.

G. N. Barnard, of Syracuse, exhibits a series of pictures on boxwood for engravers' use that are very excellent. This photographic process is original with Mr. Barnard, and has been put in practical use by several of our first engravers to their entire satisfaction.

R. Newell & Co., of Philadelphia, exhibit three or four pictures on glass, which they denominated the Newelltype. They resemble the Hallotype and are undoubtedly executed in a similar way. The head of an old man is very fine. The others are not so good.

C. J. B. Waters, exhibits photographs on wood; in our opinion inferior to those of Mr. Barnard; but in order to judge correctly, we should have had similar pictures—Mr. Barnard's were taken in the camera directly from the objects, consisting of views of buildings, machinery, landscapes, and portraits; whereas Mr. Waters' are from engravings.

A. Beckers has on exhibition one of his admirable revolving stereoscopes, containing twenty-five fine pictures. This little instrument is the best adapted for the exhibition of stereoscopic pictures, either in the private parlor or photographic gallery, than any other we have ever seen.

E. Anthony exhibits two life size photographic busts of considerable merit, taken by Woodward's *Solar Camera.* We should also state that the large pictures exhibited by Messrs. Brady and Gurney, were by the same instrument.

C. C. Harrison has a case of Cameras from ¼ size to the mamoth. We feel it quite unnecessary to enlarge upon their merits--they are of world-wide renown and always of beautiful workmanship, and those not being got up expressly for exhibition, possess precisely the same qualities as those always in market.

W. H. Lewis has a case of handsomely got up camera box shields with solid glass corners, and nitrate baths deserving special mention. They are also well known to the photographic community.

This closes the list of exhibitors in the Photographic Art at the Fair of the American Institute for 1857—but we *had* forgotten one—we have a slight recollection of seeing a small case of Ambrotyyes ticketed—"*Maker*--A Shabby Dog"—a relative, we suppose, to Dogertype Factory. We were very much disappointed in finding so few of our artists represented at this exhibition. There must be some good reasons for this, which must lie at the door of the Institution. Every year the complaints of our Photographic Artists against the management have grown louder and louder, and we have no doubt they are just, for although we have edited the *Photographic and Fine*

Art Journal eight years, and have visited the Fairs each year on professional business, we have never received the courtesy extended to all other members of the Press, but have always paid for our tickets. We only care for this on the principle, that "what is meet for the goose is meet for the gander."

From the Literary Gazette.

PHOTOGRAPHY IN TENERIFFE

"1 Hillside Crescent, Edinburgh, June, 9, 1857."

To the Editor of the Literary Gazette:

"Sir,—Having heard recently from my father, Admiral Smyth, that you were interested in the little that I did in the photographical way last summer in Teneriffe, and on account of the *altitude* of the stations,—that expressed reason so precisely opened up what I found to be a very important feature in the proceedings, and I may say in Nature, that I wished immediately to write you off a note, and should have done so, but for the necessity of first completing the full report on the whole expedition for Goverment. This, however, being now accomplished, I am quite free to answer your queries on the effects of height in photography.

"My photographic experiences in Teneriffe were one month at the sea-level, one month at the altitude of 8900 feet, twenty days at the altitude of 10,700 feet, and one day at the height of 12,200 feet. This last day was spent on the summit of the Peak, and the success of the photographs was so greatly impeded by the continual jetting-out of watery and sulphuric vapors from every portion of the small crater which forms the summit, that I leave it out of the present question. Taking the other stations, the average times of getting a good picture of a standard subject, in average illumination, were represented by 7 at the sea-level, 5 at the 8900 feet station, and 3 at the 10,700 feet station. These different periods of duration, however, by no means express the whole improvement with altitude; for on looking over the whole collection of about 150 pictures, I find that the intensity and power of those at 10,700 feet is eminently greater than of those at 8900, and these again are far superior to those at the sea-level. Further still, I find that there are remarkable facilities in the upper regions of the atmosphere for procuring the detail of distant objects. Thus, over and over again, at 10,700 feet I have obtained on the collodion plate the bushes, and the stratification, and even the cleavage of the rocks forming a chain of mountains four miles distant. But at the level of the sea, with a similar range of mountains, and at the same distance, and trying it when to the eye the sun was most vigorously bringing out the marking of the ravines and the clefts of the rocks, I could never get anything but the outline of the mountain, filled up by an even tint. With objects close by, there was at the same time and place as much photographic as optical detail; but aerial perspective or dimness seemed to increase so much more rapidly for the actinic rays than the luminous rays, that four miles of air produced with the former as much scattering effect as forty miles would with the latter. Hence while there was an increase of rapidity on the mountain, and an improvement also in intensity, there was found to be a power with distances of procuring that which is altogether impossible near the level of the sea.

"I have guarded myself as much as possible from giving the results in absolute terms for any station, as that would at once include the special sensitiveness of the particular compound employed, as compared with what other persons employ. Differential determinations for altitude are all that I attempted to obtain; and to this end I used the same apparatus through the the whole period. I have reason to think that the collodion was not so sensitive as it might have been; but that it was respectable, a very fair representation of the surf on the beach at Orotava, taken in about a quarter of a second, sufficient testifies.

"Requesting your acceptance of a couple of specimens of photographs taken at a vertical height of more than two miles in the air "I remain, &c., "C. Piazzi Smyth."

"*** We have inspected with much pleasure the two photographs forwarded to us by a Professor Piazzi Smyth, accompanied by a third, taken at a comparatively low altitude. The two alluded to in the Professor's letter are of considerable geological interest. One view, taken at the height of 10,700 feet, represents a portion of the Malpays, or broken lava stream of stony augite. This stream of lava, we believe, is the largest on the island, and has been described by geologist as being heaped up in dykes or embankments, over which the traveller is obliged to clamber as one ascends a steep wall. The lava is stated to be porphyritic, with large masses of felspar, not covered with a thick scoria, apparently never having been in a very fluid state, but to have rolled along in large masses. The whole composition of the stream is of felspar embedded in a brown clayey paste, remarkably hard, of a close texture, and heavy. The breadth of the stream is above two miles, and it contains ravines from 60 to 100 feet deep. Of these appearances the photograph before us is a most remarkable illustration. The view is taken across the stream of lava, and, with the help of the stereoscope, a succession of four, at least, of these ridges are distinctly marked, bearing all the traces of the phænomena above described. Each dyke bristles with irregular masses of felspar embedded in its surface, and the whole scene is savage and inhospitable to the last degree. Higher up, at an elevation of 11,000 feet, another view has been taken of the entrance to the ice caverns, a spot called La Cueva, where is a cave filled with snow and most delicious water. The rocks here present an appearance of partial vitrification. Some exhibit a union with the pumice, and the gradation from the stony structure to the vitrified, and thence to pumice. Veins of volcanic matter formed under different conditions of heat and pressure run through the mass. This photograph is of a beautiful sharpness. Two ridges of rocks vitrified at the upper edges are seen, and then the face of the cliff in which lies the entrance to the caverns. The fact of the color being not so deep as in the former is accounted for by the circumstance of the day having been cloudy. The third photograph gives a scene in the cultivated part of the Island, near Orotava. The dragon-tree (*Dracæna Draco*), with its smooth stem, terminated by forked clusters of thick boughs, each tufted at the extremity, is a rare and interesting feature characteristic at once of a tropical region. It is impossible to witness the effect of these specimens without being struck with the important bearings of this wonderful art upon geological and botanical science. We congratulate the Scottish Astronomer Royal on being one of the first to apply the stereoscope to the dignified researches of physical science, whilst our shop-windows are crowded with subjects which are either trivial and silly on the one hand, or else appeal to the vulgarest tastes. The example will doubtless be extensively followed, to the spread of accurate knowledge, with the lasting benefits which arise from such acqusitions."

From the Liverpool Photographic Journal.

POSITIVE PROCESS.

BY M. H. BAYARD.

I prepare paper so sensitive that negatives may be copied in one second in the sunshine, and the process is such that it may be used even with artificial light. It may also be used to obtain negatives in the camera-obscura, but must be employed *dry*.

FIRST PREPARATION.

Dissolve in about two pints of distilled water,

Iodide of potassium..............	7	grammes.
Bromide of potassium............	2	„
Pure Sal Ammoniac........	2	„
Cyanide of potassium............	1	„

Immerse the paper, sheet by sheet, for a quarter of an hour at least, till thoroughly saturated, then hang it up to dry. When dry the paper is kept in a portfolio ready for use. The proportions of the salts may be varied, provided always that the iodide of potassium predominates; the preparation of salts may be even dispensed with, (especially if Whatman's English paper be used,) and the paper at once submitted to the acid vapors, presently to be described; but then the result is less sensitive to the light.

SECOND PREPARATION.

Add ten or twelve grammes of iodine to 200 grammes of pure hydrochloric acid, and twelve hours afterwards, having meanwhile frequently shaken the mixture, to aid the solution of the iodine, add seventy-five-grammes of distilled water. When the liquid is cool, pour some of it into a dish, having a ground edge, and cover it by a ground-glass cover; then take a sheet of the previously prepared paper, taking care that it is larger than the dish, and slip it under the glass cover, and leave it exposed to the acid vapors for four or five minutes, according to the thickness of the paper and the temperature; then withdraw the sheet, shaking off the excess of vapor in the air, and place it upon a bath of nitrate of silver (nitrate of silver one part to twelve parts of water.) In five or six minutes after the exposure to this bath, all deep color having disappeared, remove the paper and hang it up by a corner to dry; the paper must be thoroughly dried, and then it preserves its sensitiveness for several days. Exposed at the focus of Daguerre's normal object glass, it gives an image, in sunshine, in five minutes; by superposition the images are obtained, as we have seen, in a second, or in an hour's exposure to a carcel lamp. The images are made visible by gallic acid, and finished in the ordinary way, and fixed by hyposulphite of soda.—*Comptes rendus de l'Academie des Sciences.*

For the Photographic & Fine Art Journal.

THE FIRST LIFE SIZE PHOTOGRAPH.

"The first full length life size untouched Photograph ever made, was executed by J. Gurney, and can be seen at the Fair of the American Institute at the Crystal Palace."—*Advt. Home Journal, Oct.* 1857.

"A Great Triumph of Art.—We saw yesterday at Wiswell's on Fourth street, a full length photographic portrait of Mr. Carey, father of Freeman C. Carey, late President of Farmers' College. It is of life size and was taken by Fontayne at one sitting and upon a single sheet of paper. We believe this feat has never been accomplished before. Cincinnati artists have long been celebrated for the excellence of their daguerreotypes; and they appear determined to take the lead in all the new developments of the daguerreotypic process. Duncanson painted the photograph, which is one of the most striking and life-like pictures we ever saw. It is the greatest curiosity of the day, as well as a fine work of art. It will remain at Wisnell's for a few days, we presume."—*Cincinnati Gazette,* 1855.

It may be seen by the above, that Mr. Gurney is mistaken two years, and that the Metropolitan City is behind in the production of a life size full length photograph, the same period of time. I made two full length life size portraits on paper, seven feet long in October 1855, one of which can be seen at Farmers' College; and the other may (or could a short time since) be seen at the store of William Wiswell, Cincinnati, Ohio. They were perfect in detail and finely modelled, were seen by several artists and gentlemen of the press before calored, and excited as much wonder as admiration. The formulas and contrivances for the production of these photographs were original with me; the same have been published in the P. & F. A. Journal by a pupil of mine, and are now generally practiced throughout the West. What is to-day a very simple photographic performance with Woodward's *Solar Camera,* was at that time, with the facilities or rather the want of facilities, a very difficult feat. I made life size portraits, head and bust, filling a sheet 22 by 27 inches in March 1855, and do not know of any work of this size being made by any other photographer at that date. It would be gratifying to me, and doubtless would be to others to know, who made the first life size photograph in this country, say the size mentioned above—22 by 27 inches. If any reader of this should know of such portrait having been made previous to my date, I should be pleased to hear from him. I am prompted to the inquiry from a love of the Art; and as the making of life size portraits was a commendable stride in it, I naturally have a curiosity to know who was the first to accomplish it.

Respectfully yours,
Charles Fontayne,
Practical Photographer at Ryder's Gallery, Cleaveland, O.

[We received the above after our article on the Fair was written. The photographs spoken of in that article are plain untouched pictures. Mr. Fontayne, however, must be considered the first who performed this feat.—Ed.]

From the Liverpool Photographic Journal.

THE DRY COLLODION PROCESS.

BY R. F. BARNES.

The attention of the reader has been, elsewhere, drawn to the pamphlet of Mr. Barnes giving his lengthened experience upon this subject. His remarks upon the *Preparation of the Albumen* will well illustrate the detailed manner in which his instructions are given:—

The great objection to the use of albumen is the difficulty of getting the solution perfectly clear and sufficiently limpid to flow ready over the plate. By adopting the following method the resulting fluid is beautifully transparent, entirely free from "floaters," and is as easily applied as collodion itself. The solution is prepared as follows:—

White of Egg (new-laid)...........	2 ounces
Distilled Water.....................	6 "

Beat up with a glass stirring rod so as to well mix the two fluids, but not sufficiently so as to convert the whole into a frothy mass. Then add about thirty drops of glacial acetic acid (quite crystallizable). The effect produced should be to precipitate the greater portion of the albumen in a flocculent mass, converting the mixture into a curdy fluid. Some eggs, containing probably more alkali than others, require a greater proportion of acid to partially separate the albumen. The acid should then be added until the flocculent precipitate manifests itself, the fluid being kept stirred during and after each addition of acid. When a sufficient amount has been used allow it to stand for a few minutes, and then strain it either through a clean piece of muslin or fine sponge placed in the neck of a funnel. This gets rid of the greater portion of the flocculent deposit, and renders the liquid sufficiently limpid to pass through ordinary filtering paper. It generally requires to be filtered two or three times before it is sufficiently clear for use. Care should be taken to pass it two or three times through the same filter, as at the first filtration fibrous particles are almost invariably carried off the paper, and are to be found floating in the liquid. The presence of this foreign matter would produce streaks and stains in the resulting plate.

The albumen will keep good, in moderately warm weather, for about a month. The eggs should be newly laid; if not, it will be impossible to obtain the solution perfectly limpid, however frequently and carefully it may be filtered.

The glass plate *must be well cleaned with alcohol,* and if of a large size [plates ten inches by twelve inches were used by Mr. Barnes], placed on a pneumatic or other plate holder. The albumen solution is then poured upon the plate, facilitating the spreading of it by the use of a glass rod. This last operation is not always required, the albumen generally flowing very readily, especially if the plate be cleaned with alcohol. When the whole of the surface of the plate is covered, incline it slightly, so as to allow the surplus solution to run off. The bottle into which it is returned should be supplied with a funnel, as the albumen runs off the plate at half-a-dozen places at once, and much of it is lost. Let the plate drain for about half a minute, and then hold the back of it to the fire, first warming the upper corner of the plate. As soon as it begins to steam the temperature must be lowered by withdrawing it to a greater distance from the source of heat. The only guide as to the heat applied is the amount of warmth that the fingers of the operator will conveniently bear. The plate will dry in about *two minutes.*

These albuminized plates may, if desirable, be stored away in plate boxes, and the subsequent coating of collodion be only applied as the plates are required for use. In this case and in very damp weather, the plates before coating with collodion must be warmed, to drive off any moisture they may have acquired. . . . . In the process of coating plates a large quantity of albumen should be poured on. By taking this precaution any particles of dust, &c., will float on the surface, and be carried off whereas, were only a small amount to be used, they would be likely to adhere to the glass.

The dried albumen plate is now ready to receive the collodion film and be excited in the silver bath; but for the rest of the details the reader must go to Mr. Barnes' pamphlet, where he will learn that "it is perfectly impossible to obtain *very sensitive* dry plates without employing some substance to *support* the collodion"

From the Jour. of the Phot. Soc.

THE STEREOSCOPIC ANGLE.

Holywell, June 18, 1867.

To the Editor of the Photographic Journal.

SIR,—Having been much interested in the stereoscope during the last four years, and having taken scores of pictures for it perhaps a few remarks on the peculiarities of this most valuable and interesting instrument may be acceptable to some few of your readers. What has inclined me to trouble you at the present time is, the reading the very instructive discussion between the Members of the Photographic Society.

I am quite of the same opinion as Mr. . hadbolt, that to move the camera to a greater distance than about 2½ ins., in taking stereographs, is incorrect, as there is no human brain that can see nature at a greater angle.

It is argued that, in taking a distant bird's eye view of a town, the effect is more "stereoscopic" by removing the camera some yards,—the artist at the same time avoiding very near objects. He thus gets a great portion of the town upon his plate, and all "*nicely stereoscopic;*" this is quite correct. It is certainly very pleasing to behold; but never has a human pair of eyes seen this town as the stereoscope will show his two pictures taken at such an angle. The result of separating the camera so wide apart is, to reduce the town to a "model" of so many inches to the mile. For instance, did he possess a true model of this town and take stereographs of it, by moving the camera 2½ ins he would in the latter case have similar pictures to the former, that is, stereographs of the *model* of the town and not stereographs to the town This is why so many of the French appear so like card-board models. Every house, chimney, &c, appears more distinct than in nature. The fore-and back-ground are seen with the same minuteness of detail, just as we see in looking at a model where *all* its parts would range but a few feet from the eyes. When viewing a model the eyes are comparatively some yards apart; consequently a model can never, in perspective, be a true copy of nature.

In removing the camera more than the 2½ ins, you altar the relative position of objects, as they are not in the natural line of vision. Objects in the back-ground that would be obscured by those in the fore-ground at the natural distance of the eyes, would be wholly or partially exposed. In fact there would be a complete derangement in the relative appearance of everything in the field of vision. This certainly would not be as we see nature. It is thus evident that this instructive instrument may be made *too* interesting by pandering to the common taste, to the sacrifice of true science.

Again, in taking a large monumental group, the artist may think here, as he has no back-nor fore-ground objects to attend to, he may move the camera to any reasonable distance, so as to give a bold relief to all parts. To reduce this monument within the size of stereographs, he may have to place the camera say 50 yards off. He then for the second picture moves the camera perhaps 3 or 4 yards. He will again produce a very nice stereoscopic picture, but not a correct copy of the monument,—it will be the copy of a similar monument, but of a *much smaller size.* In looking at that monument with the two eyes, separated, as they are, from 2 to 3 inches, its several parts will occupy certain positions relative to each other. Look at a small model of this same monument, and the *relative position* of its several parts will not appear the same,—being viewed under a greater binocular angle. The mind consequently becomes conscious that it is in the one case taking cognizance of a large monument, and in the other of a very small one, or a model of the same. To remove, therefore, the camera to a greater angle than the eyes, will convey to the brain the sense of *diminution* in the size of the object of objects drawn, and if the angle is still increased, it will then have the effect as if you had brought the object close up to the eyes. For instance, I took stereographs of a plaster model of a horse, the model being about a foot in size. I moved the camera much more than the 2½ ins., and the effect was to make the horse's nose appear—it being the point nearest the camera,—to touch my own. As the two pictures caused such a great convergence of the eyes, it was natural to produce this idea. I could not perceive that it made the horse "too stereoscopic" as some say, that is, that the body of the horse became "elongated." My impression is that the latter idea is an error,—the effect being to draw the object up to the eyes, as well as reducing it, as before explained, in size To make a man's arm, leg, or nose appear unnaturally extended, or "stretched" beyond there usual length, the member itself only must be altered in position; and this can only be done by moving the arm or leg to the right or left for the second picture. A distortion now takes place, as the whole figure has not been taken at the same angle. As explained above, however great the camera moved, all the parts partaking of the same angle, the effects will not be to produce distortion, but a diminution, and the drawing the fore-objects too near the eye.

E. JONES.

Personal & Art Intelligence.

— THE Fair of the American Institute just closed, may furnish the mind with many subjects for thought. In a photographic point of view, there are many things worthy of note. The improvements in the art have been manifold and of the greatest importance, not only to the practical photographer, but to the people at large. A very few years ago, a life-size bust portrait could not be obtained for less than five hundred dollars, so that none but the wealthy were able to procure them. The walls of our people generally were bare of works of art; or filled with the merest daubs, poor engravings or worse lithographs. The taste of the educated in moderate circumstances as well as of the poorer classes, thus became vitiated, as it was with difficulty that one was found who could distinguish between a valuable or worthless painting. In fact, the love of Art which was universally felt in the days of West, Stuart, Trumbull, and their cotemporaries, was entirely lost. Any thing in the shape of a picture—anything that had color upon it—satisfied the taste—the object seeming to be, with those who purchased, the mere filling up of some gap on the wall of a room. Of worthy painters we have had a host—but have they not all lived to starve and die by inches—there not being enough, even among the *monied aristocracy* of the land, to appreciate high art sufficiently to bestow orders upon them. We have seen men—even among those whose wealth enabled them to obtain a fine portrait at any cost—employ dabsters at five, ten and fifty dollars, on family portraits intended to *grace* their parlor walls, while our first artists were obliged to want for a loaf of bread, because they considered six, eight, or twelve months sufficiently soon to execute a perfect picture, and one, three, and five hundred dollars, its value when completed No one will deny that this was substantially the state of Art in the United States at the time Mr. Gourard introduced the Daguerreotype into this country (1839). At first it was looked upon, as the stereoscope is now, a mere toy for philosophers and men of science to play with; but the exertions of a Morse, a Draper, and a Walcott, made that toy a mighty engine to revolutionize art taste in the New World. The painter affected to look with scorn upon the infant born to them—but it was a lever wielded in other hands, not to crush them, but to give them honor, glory, and prosperity. They did not, could not see this—some cannot see it even at this day—but it is no less so—at first indirectly, by causing the masses to think more of seeing themselves as others saw them—now directly by facilitating the production of portraits and causing a closer scrutiny into the merits of works of art, and creating a desire for the best that the means of each individual will permit. The pioneers in the daguerreotype as they progressed, improved their knowledge in the principles of art, and correspondingly improved their productions. With their improvement the taste of the people improved—slowly we must admit; but no less steadily. To none is this so apparent as to those in the photographic art, who fifteen years ago were cognizant of the ideas of the people then, and of the same individuals now. Understanding the difference between a poor and a good daguerreotype, they came to a knowledge of the true meaning of art. Thus, step by step, as the photographic art improved, the taste of the people improved. The importation of fine engravings now began to increase—the miserable lithographs of native artists gave place to the exquisite productions of the foreign burins—and one step more was advanced in the affections of the people. Photography made one more stride. A skillful Archer barbed and shot an arrow that penetrated to the very heart of the popular body. The *Pantograph* was invented—for which *we claim* and can *maintain* priority*—a Fredericks came amongst us, and life-size portraits were inaugurated. The large number which have been made since that time, proves with what avidity this source of gratifying the improved taste was employed. Portrait painters were also benefitted by this—we may say—rush for portraits, in the increased number of orders from the wealthy, who still affected to consider photography in a secondary light, while painters themselves forced to acknowledge—what we asserted eight years ago would be—the fact, that photography was their handmaid, no longer refused to ask her aid—while the wondering crowd asked what will not photography do? and while asking this question, a Woodward—himself a portrait painter—steps forward and with his *Solar Camera*, places before the still more wondering crowd, such pictures as those presented to their view by a Brady and a Gurney at the Crystal Palace. Well may they ask, "where will Photography stop?" The voice of the future alone can answer. Can we not now, by its aid, measure the height of mountains—ascertain the distance from us of the heavenly bodies—measure the force of a cannon ball and the accuracy of the cannons aim—report progress of architectural, naval and other constructions to distant points with an accuracy unimpeachable—take the soundings of the sea, and make discoveries in the microscopic world? We have only began to arrive at the wonders of Photography.

— Mr. Black is the only one who has complied with our request regarding the varnish. He says:

Boston, October 1, 1857.

Friend Snelling,—I see by your last number of the *Journal*, that you complain of the varnish wearing off and the collodion sometimes blistering, so as to render the negatives almost useless; my experience has been, if gum lac is used, which generally is, that the varnish was not thick enough; or what was worse, much from poor gum. The discoloring is caused, I think, by chemicals left in the picture from careless and imperfect washing, as was the case with *Flora* which was taken in the Crystal Palace, where the means of thorough washing was not very convenient, especially if negatives are redeveloped with pyrogallic solutions. The blistering always happens when the glass is not perfectly clear, and in the dark parts of the picture where the light has had but *little* accession, the film becomes detached from the glass before varnishing; the contracting and expanding consequently are frequent; printing in hot and cold, damp and dry weather, soon splits the picture off, some varieties of collodion are much more liable to this kind of accident than others. I think the *best* kind of negative or positive varnish (for glass pictures) is made from white lac, being careful to select the best bleached white lac of a *hard tough* consistency; some kinds are very white and rich in color, but powdery and brittle texture. In preparing it, I use a large carboy two-thirds full of 95 per cent. alcohol, in which I put enough of the gum coarsely broken to make the varnish of proper thickness; shake and stir this about occasionally for a few days till it is all dissolved; then pour into ether bottles, and set in the window exposed to the sunlight. The varnish will clear of itself, the thick insoluble parts separate and fall to the bottom—the top can then be poured off to bottle for use. This makes a tough horny-like surface over the film, which it is difficult almost to scratch, and when the collodion film is good, adheres well to the glass. I have never had a single picture crack up or darken by exposure; some of them have printed as many as 500 copies yet look as well as ever—some are between three and four years old—some albumen negatives I think over six years, yet they seem to adhere to the glass as well as ever, a fact that speaks well for the permanency of both pictures and varnish. The last negatives sent I hope you will observe and let me know how they act under continued printing, keep the first and last prints for comparison. I have delayed sending them hoping to get something more interesting; they shall be packed to-morrow, and I will try to get some descriptions to make them of some interest.

Yours truly,
J. W. Black.

— Tatum's Photographic Canvas.—We would call particular attention to the advertisement of Mr. Walzl of this article, as we consider it the best offered for the purpose. Mr Tatum being a portrait-painter, first prepared it for his own use, and found it to answer so well that he was induced to offer it to his brethren in the art. Our readers need not class this among the *humbugs* of the day, we can assure them.

— Mr. Wenderoth has succeeded in taking life-size photographs with the Solar Camera, by sunlight instantly, and in thirty seconds by lamplight. Mr. Wenderoth has opened rooms at No. 814 Chestnut street, Philadelphia. Photographic artists in the country who wish small negatives enlarged to life-size and colored beautifully and artistically, will be accommodated by Mr. Wenderoth. It is only necessary to send him the negative and a description of the complexion, &c., of the person to be painted.

— C. D. Fredericks.—This gentleman has just added a decided improvement to his gallery. He has opened the adjoining building into his gallery, and fitted up a fine room, beautifully, as a boudoir, with a separate entrance from Broadway. He has also added a new operating room in the same building, of the most complete description. He certainly will reap rich reward for this enterprise, as none so soon appreciate good designs for their accommodation as the ladies.

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* The use of the Pantograph was introduced by Mr. Fredericks two years subsequent to our invention, and we have always thought until recently, from Paris—but Mr. Fredericks informed us a short time since that Mr. Anthony, who made our model, furnished him with the first Pantograph. The European Pantograph did not appear till six months after.

— Mr. North corrects an error we committed, in the following letter:

Cleaveland, Sept. 21, 1857.

Mr. H. H. Snelling—*Dear Sir:* In your notice of Prof. Smith's Dry Process in your September number, you state that I informed you that his process (Smith's), was the best adapted for taking large groups, and portraits of children, &c. The process I referred to was not the *dry*, but a new method of making very fine negatives with the wet plate, in the same time the ambrotype is made, and with the same bath and collodion. This process I find very valuable for children or adults either, as I can make a better negative in five and six seconds, than I can in the ordinary way in thirty. The Dry Process I consider only valuable for out-door views, as the wet plate is good enough for in-door operations. I make this correction, as some will anticipate more from the dry plate than they ought.

Yours truly,
W. C. North.

P. S.—These negatives are made by Smith's Ambrotype Negative Developer, which may be obtained of E. Anthony, N. Y. W. C. N.

— Lay & Heywood, of Boston, have sent us several positives of the most beautiful description. They are fine in every feature, and are unsurpassed in the artistic taste displayed in getting them up. We have since been favored with two of the negatives with which to illustrate our *Journal.* We have also received two views from Messrs. Whipple & Black. These will illustrate our January and February 1858 numbers, and they will be the best we have ever published.

— The Ambrotype. *A Practical Treatise on the Art of Producing Collodion Positives;* by Charles A. Seely, A.M. A concise practical work calculated to assist any one in the practice of the art of which it treats. Seely & Garbanati, Publishers, 424 Broadway, N. Y. Price 25 cents.

— H. C. Smith, Ridge Farms, Ill.—If this individual will send us a *good* negative portrait of himself, we will publish it in the *P. & F. A. Journal* together with his last letter.

— J. C. Elrod, Lexington, Ky., gives us a specimen of the way the good people of his city patronize the Photographic Art. He has just completed an order for $975 worth of cabinet size pictures. It gives us pleasure to hear of the prosperity of so worthy a man, and we trust he will enjoy plenty more of it.

Dayton, October 9, 1857.

Friend Snelling,—Our State Fair, as well as our Ohio Mechanic's Institute is closed. The Photographic Exhibition was really a grand one. Mr. Porter, of Cincinnati, carried the prize at the State Fair, (to tell the truth, nothing else was there); North, of Cleaveland, had the courage to send three daubs of distinguished men. Mr. North will excuse this expression, it has reference to the painter that covered them; the photographs may have been as perfect as Porter's, but as it is they are bad. Porter's are superior to the best I ever saw. I conversed with artists (painters in the place) they thought they were pictures superior to the best Cincinnati painters' productions. Somebody from Columbus, exhibited one of Baldus' famous photographs of Architecture in Paris; the exhibitor crowns his brow with a diploma of best plain photographs (rich). Some few other wretched things hung around; on one of them was "room rights for sale" (I had to laugh). Porter's Mechanical Institute Exhibition must amount to from five to six thousand pictures, besides one hundred plain ones. I could almost have knelt before these productions and worship the painters, who colored them as well as O. J. Wallace, who has charge of the chemical department. Bale & Harlan's exhibition is a pretty large one, with two life-size photographs; some of his pictures were pretty good. I believe these gentlemen received a premium over Porter (I wonder who the judges were). Hawkins showed several excellent heliographs (diaphaneotypes); they are improved considerable, and are, as a painted picture, superior to hallotypes. Such exhibitions do a great deal of good, but as to get premiums awarded by judgment of some live-stock raiser, shoemaker, or woodsawyer, is ridiculous. An exhibition of a good photograph is what we want; it raises the spirit of an energetic photographer, and is considered a model; therefore these journals delight to show at least one extremely good one and one bad one, to show the capability of some puffed up operator—some may take this as a hint. Three years ago when photography was in its infancy, and none but scientific men employed to take photographs for the P. & F. A. Journal, we used to see better pictures than we do now; and could not the Journal afford to pay something for choice illustrations?* The operator could send a sample and see if it would suit.

"In justice to Mr. W. S. Porter, we feel compelled to state that the award of prizes on articles exhibited in Class 32 (O. M. I. Fair) is not at all in accordance with the decision of the undersigned judges, according to which the highest premium ought to have been given to him and E. C. Hawkins.

Peter Smith,
Jas. Foster, Jr.,
Henri Lovie."

Very respectfully,
Louis Seebohm.

N. B.—How many illustrations does it require for one month's number?†

— Lovers of fine works of Art, will not hesitate to avail themselves of the invitation conveyed in the following:

Old Art Union Rooms, 497 Broadway, Oct. 15, 1857.

Dear Sir.—With this you will receive a card of admission to the private view (on Monday the 19th) of the Exhibition of Modern Artists of the *French School*, which will be opened to the public on Friday next at the above rooms.

As strangers to your city, we respectfully solicit your aid in bringing it before the notice of the public.

We also ask you to inform, through your Journal, all artists resident in the States, that on presentation of their card, they will be placed on the *free* list; thus affording them an opportunity of studying as often as they choose, the works of artists of the French School.

Our object being the dissemination of the love of Art. We also desire that the Managers of *all* free Institutions for the education of the young—such as the Deaf and Dumb Institution, &c. &c., will place themselves in communication with the undersigned as speedily as possible, that arrangements may be made for the gratuitous admission of the pupils under their charge.

Once more soliciting your aid in thus serving the cause of Art, I have the honor to remain, for the Promoters,

Yours, most respectfully,
B. Frodsham, Sec'y.

— Printing without Silver.—In our last, we exposed the last pretended "New American Discovery," which several photographers, among them Mr. Cahill of Boston, Mr. Tomlinson of New York, and Mr. Rhen of Philadelphia, have been selling or trying to sell, to their brother artists. The folly of *buying processes* cannot be better shown than in this case—as we *give*, in the present number, the best formula of the kind ever discovered. (See page 339).

— We had the pleasure of visiting the Exhibition of British Works of Art at the rooms of the Academy of Design, but too late to notice particularly their worth. We were disappointed in not seeing the paintings of the "French School," having mistaken the hour and reached the rooms too late.

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* We have tried our photographic operators to our hearts content—there is no dependance to be placed in any of them, except Whipple and Black of Boston, who only have kept their promises to us in this regard. We shall give better pictures next year.

† Five hundred and fifty.

1.—VICTOR PIARD, ESQ.

Negative by Himself.—H. H. Snelling Print.

From the London Art Journal.

TINTORETTO AT VENICE, AND MR. RUSKIN.*

THESE last two pictures were limned with Tintoretto's "golden pencil," no less surely than those we are about to refer to were delineated with his "pencil of iron," or rather his leaden one—we do not mean that highly respectable medium *black*-lead—so heavy and dull are they. In the following instance amongst these, the thoughts praised by Mr. Ruskin are undoubtedly to be made out in the picture, but then they are really thoughts so poor, trivial, and valueless, as to render it marvellous that admiration should have been firmly and confidently bestowed on them. In a "Stoning of St. Stephen," in San Giorgio Maggiore, the future St. Paul is distinguished from the others about him by being clothed in the same colors as the figure of the Almighty above. "It is almost impossible," observes Mr. Ruskin, "to praise too highly the refinement of the conception which marked the dignity to which St. Paul was afterwards to be raised, by investing him with the colors, which occur nowhere else in the picture, except in the dress which veils the form of the Godhead." Marvellous praise! Surely, this is the thinnest and weakest of all conceits that ever were conceited. Raphael, in that noble dramatic manner which characterized his "thoughts," would, if bent on a similar object, surely have pointed out Saul as the one afterwards chosen, by marking in him a consciousness of zeal and uprightness—a something, at any rate, in his *mind* and *character*, exquisitely distinguishing him from the others, not by so trivial and extraneous a thing as the color of his garment. Well, we hoped, however, that Tintoretto's picture might have something to recommend it besides these two flimsy streaks of a little "dyer's" fancy and a certain other most dry conceit of a similar order ascribed to it. Absolutely, it has nothing. It is a *marvellously* rude, coarse, daub, with figures absurdly, grotesquely devoid of character and expression; and most weak pelting, moreover, for, notwithstanding a whole cart-load of stones scattered about him, the proto-martyr seems as yet but slightly injured. There are several paintings of this class, in which the apostles are rude coarse men, *rolling* and *tumbling* about on their seats, in difficult postures, in rooms (like a modern Italian inn) set out with difficult perspectives, and in which the cold ashy and black color and daubing, as well as everything else in them, are most ungainly and repulsive; but some fantastical incident or "motive," ambushed in the shade, is frequently found out by the indefatigable, ever active-thoughted critic, and adduced as raising them into interest and importance; or the merit of some very coarse attempt at an effect in them, or the painting of some single piece of detail, is singularly exaggerated by him. We almost wonder, indeed, that he should give up "The Last Supper," at San Trovaso, to the tender mercies of Dr. Kugler, since it is, really, but little or not at all worse than some of the pictures that please him. The doctor, after remarking on the burlesque gestures of the apostles, adds, that one of them "does not perceive the cat who is eating from her dish; and that to judge from an overthrown chair the revel seems to have been of the lowest description." Gently Dr. Kugler, gently; have, we pray you, more reverence for the sublime mysteriousness of "Imagination Penetrative," for a mode of treatment which is, perhaps, purely typical. Do you not perceive that those two last circumstances are, in all probability, symbolical, and of the deepest import. That fallen rush-bottomed chair, which forms one of the most conspicuous objects in the picture, let us not rashly find fault with it. May it not be intended to fill us with solemn thoughts of the fallen Judas who has just relinquished it? Is it not a sufficiently significant type of him? and the cat so slyly filching from the platter, is not that one of the most pregnant and "suggestive" images of deceit and domestic treachery that could possibly have been hit upon?

But, by-and-bye, the painter of these repulsive daubs, having fairly succeeded in putting you out of humor with him, all on a sudden lays down his leaden pencil and takes up his golden one, and makes his friend Paul Veronese a *little* unquiet, but charms every one else by painting the beautiful and every way pleasing "Marriage of Cana," in the sacristy of Santa Maria della Salute—a work which may almost console Venice for the loss of Caliari's vast picture of the same subject, so long since removed to Paris. Mr. Ruskin well describes its leading features. "You look all up the table; the marriage-guests," he says, "on each side of it; on one side men, on the other side women. The light falls in full length along the line of young Venetian women, who thus fill the whole centre of the picture with one broad sunbeam, made up of fair faces and golden hair. One, who wears a white head-dress of lace and rich chains of pearls in her hair, may be well accepted for the bride. There are beautiful profiles and bendings of breasts and necks along the whole line. The men are subordinate, though there are interesting portraits among them." This perspective of ladies, lovingly, gallantly singled out and distinguished by a soft, warm sunbeam, is truly a delightful idea. The picture is one of the painter's most charming work's, very decidedly a golden pencilled one, and one of those which we should certainly insist on dragging our most hurried friend to look at. If he had more time, we should take him to that dim chapel of La Madonna del Rosario, at Santi Giovanni e Paolo, that he might see on the ceiling melancholy obscurity enveloping a grand jubilant display of the celestial beings—a court day in heaven!—which looks as if it vied with Veronese in magnificence, and were something beyond him in life and vigor. And if he had plenty of leisure, it were perhaps as well to visit the Carmine, to note in an altar-piece of the Circumcision how closely Tintoretto would sometimes emulate the softer, deep rich color and manner especially characteristic of Titian. But assuredly, under any circumstances, the visitor must not deny himself a few hours in the Scuola di San Rocco, since there alone can Tintoretto's peculiar style of conception, and huge swift dashing manner of painting be seen in full congenial play and energy. The three halls of the building are covered throughout with pictures by his hand, in number sixty-two, and most of them very large, the figures being all the size of life. The fraternity of the Scuola, an association chiefly of laymen, established for charitable purposes, became, in 1560, the patron of this painter, and here he continued to work during eighteen years. The badness of the light, according to Mr. Ruskin, accounts for the coarseness of the execution of most of the pictures. "They are all," he says, "painted for their places in the dark, and are for the most part nothing more than vast sketches, made to produce under a certain degree of shadow the effect of finished pictures. No other series of his works exhibits powers so exalted." "The Scuola di San Rocco," he writes, in another place, "as regards the pictures which it contains, is one of the three most precious buildings in Italy—buildings, I mean, consistently decorated with a series of paintings at the time of their erection, and still exhibiting that series in its original order. I suppose there can be little question but that the three most important edifices of this kind in Italy are the Sistine Chapel, the Campo Santo of Pisa, and the Scuola di San Rocco, at Venice; the first painted by Michael Angelo, the second by Orcagna, Benozzo Gozzoli, Pietro Laurati, and several other men, whose works are as rare as they are precious, and the third by Tintoret." There is a fourth building, the Vatican, containing the Stanze and Loggie of Raphael, which will immediately occur to most readers as an involuntary omission here; but, remembering Mr. Ruskin's intense dislike of Raphael, as the imagined chief corrupter of art from religious purity to mere pride and heathenish sensuality, we have no doubt it may be safely assumed that the omission was actually intended, and that he really means, "there can be little question" these things of Tintoretto's are of superior importance to the Disputa del Sacramento, the School of Athens, the Heliodorus, the Incendio del Borgo the Bible Series, and all the other larger frescoes, the Sistine tapestries, and the lovely ceilings and lunettes with which the marvellous invention of the young man of Urbino decorated the halls and galleries of the popes. Yet it was a little too cool and disrespectful to general opinion to dispose of the matter with so brief and off-hand a phrase. To enter upon any discussion of it here would detain us too long, so we must content ourselves at present with summarily but mildly expressing our amazement that the strange fancies and dry conceits scattered through these pictures by Tintoretto, their inappropriate, inexpressive, and wholly unimaginative *figures* and coarse painting should be preferred to the pictorially-delightful thoughts of Raphael, to his profound and clear dramatic expressiveness, his lovely and sublime poetry of invention, his truly noble majesty, his peerless beauty and grace.

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* Continued from p. 332 vol x., no. xi.

The first picture that seizes attention is the "Annunciation," respecting which Mr. Ruskin says some profound-sounding things in his chapter on "Imagination Penetrative." He has discovered for our edification that the Virgin sits before a ruined building, typical of the Jewish dispensation, the corner-stone of which has been made the headstone of a mass of brickwork newly risen in the foreground, an emblem of the Christian dispensation. Stripped of the imposing luxuriance of Mr. Ruskin's favorite poetico-theological phraseology it is difficult, we conceive, to imagine a duller or dryer notion, or one less fitted for the true purposes of Art than this. Still, we thought it not altogether improbable that there was something in the picture to atone for it, but never were we more disappointed than by the repulsive rudeness and hideousness that presented themselves. The Virgin is a very coarse, ugly woman ("Why, a washerwoman! a washerwoman!" exclaimed our discriminative friend, as we approached her, declaiming the high-flown Ruskinian commentaries), sitting in staring affright before a square pillar of brick and plaster, of the most common and vulgar description, with an ordinary rush-bottomed chair and a crib beside it; and these objects, with other rubbishy ruins behind, and a jet, or stream of very strange, heavy, and gloomy cherubs rushing towards the Madonna, are all that you can make out in this large picture, in which the figure is at least of the life-size; the rest is mere blotch and shade. Mr. Ruskin himself, however, it should be candidly admitted, highly as he admires the incident above referred to, in some degree apologises for the coarseness and painful turbulence of this picture; but, unfortunately, many of the other works are characterized by the same defect; though few, perhaps, in the same degree, except a Resurrection in the hall up stairs, where, with a singular refinement of conception, Tintoretto has represented the angels as sprawling most distressfully under the weight of the gravestone which they are endeavoring with strenuous muscular efforts to uplift.

The next of these pictures on which Mr. Ruskin expatiates is a Baptism of Christ, which he pronounces the only expressive representation of the subject he is acquainted with. He then proceeds to describe what may be called a strange phantasmal conception, a wild and gloomy one, in which the figure of St. John is indistinct; but a harpy-shaped fiend appears "waiting his time," and a mysterious hand holds a typical net, and angels stand on a typical cloud, shaped like the head of a fish, the well-known emblem of the baptismal sacrament, &c.; and the landscape background is partly cut away to afford a wild melancholy prospect of the immediately-ensuing Temptation. These morbid, night-marish notions, and dry emblematical conceits, where the main subject is shirked, and half merged in another event, which, though it succeeded in point of time, has no affinity or harmony with it in *character*, are, in the usual style, proclaimed to be the only intensely imaginative and impressive treatment of the subject, and the attempts of all other painters on the same theme are (by a rhetorical sacrifice frequent with Mr. Ruskin) pronounced but feeble and uninteresting. "The event," he says, "is ineffable on the features." Without stopping to inquire why it should be considered so, more than any of the other leading events of Scripture, we would simply content ourselves with asking whether Mr. Ruskin has overlooked the "Baptism," by Francia, at Hampton Court? It is weak enough in drawing, certainly, as might be expected from Francia, but the reverential tenderness in the features of St. John, and the meek submissiveness in those of Christ, are surely anything but feeble and uninteresting, and a touching spirit of peace and love is everywhere—first and chiefly in the affectionate eyes of men and angels, and secondarily in the serene purity of the attendant sky, on the resting trees, and the rocks (tender and gentle in feeling, however feeble, in design), and in the water, the stillness of which, supporting the Savior like a floor of glass, shines with the azure and gold of the heavens, and with the dove-like form of the Holy spirit mirrored from above with at least its own brightness. This last image, vividly pictured in the baptismal water, is not altogether amiss as a "thought;" but it derives its value principally from its pictorial beauty, as an intense expression of purity and bright repose, such as is always pleasing in itself, and here especially, in harmony with the subject; but where the Holy Spirit is already apparent, enthroned in the countenances of angels and men, we scarcely want it signified by a conceit in things inanimate. Nevertheless, the object here is in itself beautiful and interesting, which is more than can be said of Tintoretto's cross-shaped net and fish-shaped cloud. And can it be maintained that Tintoretto's general conception of this subject is truly characteristic and imaginative? was the moment when the heavens opened, and the Holy Spirit descended as a dove, and the voice, "Thou art my beloved Son, *in whom I am well pleased*," a moment of gloom, and wildness, and melancholy portent? Would it not have been far better to paint it in colors drawn altogether from some cloudless roseate morning; as the emergence of the Sun of righteousness, as the event of all others most auspicious of joy, and peace, and happiness to man? It is, indeed (let it be said once for all), quite absurd to say that Tintoretto avoided the usual modes of conception because of *their* weakness and unimaginativeness. He avoided them because of *his own* weakness and unimaginativeness. It was utterly beyond him to see the faces of John the Baptist and the angels with the far upward piercing gaze of gentleness and love as Francia has done. He had none of the "fair humanities of old religion" in his powers of Art, and very little, if any notion, generally speaking, of the expressiveness and power of the human countenance, in which thought and feeling, tenderness, pathos, and grandeur, have their chief seat; and so he was driven to have recourse to the poor substitution of strange and trivial fantasies in things secondary. Yes, from Francia's humble, serene, tender-hearted rendering of the entire subject in its own true spirit, one turns with tart disrelish to Tintoretto's shirking of its so-styled ineffable features, and avoidance of their sweetness and heavenliness in coarse *diablerie* and dry emblematical enigmas, as described by Mr. Ruskin; and, from Mr. Ruskin's description let us now add, one turns to the picture itself, though not with disappointment, at least with surprise. We will not take upon ourselves to say positively that most of the imagery and incidents he enlarges upon are not there; we only assert that we could not see them on a close inspection in the early morning of a brilliant day, and that, at all events, the picture is so dark and confused, so utterly wanting in ordinary perspicuity, that it must entirely baffle all but the most painful scrutiny, and the most ingenious interpreter. Nor, according to Mr. Ruskin's view, will the darkness of the room account for the mystery, since he expressly tells us that the pictures were painted for their places in the dark, so as to produce under a certain degree of shadow the effect of finished works. It is just *possible* these vaunted thoughts may be there; one can only say that they produce no effect at all, and that in themselves, *on Mr. Ruskin's own grounds*, they are of no value, and not worth any laborious investigation.

The same unredeemed coarseness, disagreeableness, and want of perspicuity characterise the "Massacre of the Innocents," a few vague and obscure hints in which Mr. Ruskin has worked up and embellished with his ever-active fancy into a very definite and highly-wrought picture of rushing, writhing, murderous horror, and maternal frenzy. Raphael's treatment of this subject is pronounced too painful, and yet Tintoretto's, though so much lauded, would, if Mr. Ruskin's description were correct, be incomparably more so. For, "on looking at it," he says, "our eyes seem to become bloodshot, and strained with strange horror and deadly vision. Here is a heap of the mothers entangled in one mortal writhe with each other, and the swords, *one sword being caught by the blade and dragged at by the woman's naked hand*. The youngest and fairest of the women falls backward right on the sword points. Their shrieks ring in our ears till the marble seems rending around us," &c. A refined and elevating substitute, truly, for Raphael's "degradation ot the features," and too painful hardening mode of treatment! But, on turning from this furiously exaggerated description to Tintoretto's picture, one is at once set quite at ease; little or no horror is felt at the coarse and shapeless caricature; and one simply sees how excitable a faculty is Mr. Ruskin's fancy, and, where his predilections urge him forward, how slight a cause will elicit its wildest luxuriance. A confused heap, or medley of rolling and tumbling women and children, inanimate, inexpressive, vague indistinct creatures there is in the foreground, and also in the background, but it was sometime before we could make out an executioner. All the rest is obscurity and dark blotchy shade, of a coarseness and heaviness perhaps peculiar to Tintoretto.

One more instance of this kind it may be as well to mention, as the subject is a landscape, and the illusion, therefore (landscape, being Mr. Ruskin's true *forte*, his intellectual home, where one is often tempted to wish him to remain altogether), perhaps even more extraordinary. He has described the landscape in Tintoretto's picture here of the "Journey into Egypt" with fair and delicate colors—faint crimson and blue, and rosy, and silver, add white, and fanciful similes which, until one begins to think for a moment, remind one of some passage in one of Shelley's ethereal morning-cloud-like poems, but which, when looked into a little, are found to be wholly inconsistent with each other, and in the combination unimaginable—a pretty variegated puzzle for the fancy, nothing more.* Yet, when we compare the description with the picture, we cannot help being captivated with at least its *antithetical* appositeness. Rarely have we seen so rude and ugly a landscape as this, which Mr. Ruskin pronounces one of the finest in the world. Of the lovely colors with which he has heightened his description, we could find no trace. The foliage, especially, is most straggling, ill-composed and ill-shaped, and most ponderously daubed in, morever, with all the repulsive coarseness of common scene-painting. This opinion will, we believe, derive some support from an engraving of a background of Tintoretto's in Mr. Ruskin's third volume, in which the foliage and general treatment are similar, though far better. Are not the background trees in that print very poor in shape, and the leaves and colossal grasses projecting from the dark rock, or trunk, in front (one can hardly make out which it is) a monstrous and very feeble exaggeration? But now, in this picture of "The Journey in Egypt," we come at length to something pleasing; though here (as usual in discoursing on Tintoretto) Mr. Ruskin chills us with his exaggerations, and Raphael-depreciating comparisons "The Virgin's Head, in expression," he says, "is as sweet and intense as any of Raphael's; its reality far greater." Meekly, but confidently, we protest against this. The head—*notwithstanding* this praise, we manage to sustain our admiration for it—is beautiful, certainly; but the features, being much obscured by shadow and a downward look, it cannot be said to have any "intensity" at all, or much individual character. Neither form nor expression is sufficiently developed, and none but a rooted hater of the sweet, divinely-human Raphael would have dreamt of such a comparison as Mr. Ruskin puts forth here.

Similar deductions must be made from his praise of the high-priest in the picture of "The Circumcision," of which he says that he knows "no existing old man's head so exquisitely tender or so noble in its lines." A nice old venerable head enough, one exclaims; but, from slightness and obscuring shadows, nothing more. It is of this picture the eulogist adds, in his own style, that it is "unquestionably the highest existing type of the sublimity which can be thrown into the treatment of accessories of dress and decoration; the whole picture is like a golden charger to receive the child—a picture of the moral power of gold and color." Here again how poorly does Tintoretto prop these choice flowers of the Ruskinian rhetoric! The whole picture is made up everywhere of black, brickdust color, grey, and white, with only a very slight indication of some richer hue in the high priest's cope. Not but that this is a pleasing and interesting picture. The high priest is a dignified figure, and the manner in which his ample cope is held up, where he sits, with his attendants on each side, has an imposing effect. The most attractive of these pictures in the lower hall is, however, "The Adoration of the Magi," a work of a similarly deep, but richer and more varied tone.

We could dwell upon it with pleasure for awhile, but it is now high time to ascend the stairs. The light, however, is fading away from these dusky chambers; besides, the space allotted to us for the present is filled up, so we must postpone to another opportunity some notice of those famous works by Tintoretto in the upper halls of this building and the Palace of the Doges, in which we hope to find new matter with regard both to the painter and his critic, such as may be not without interest to the reader, after inditing which it is our purpose to close with a few reflections on certain other subjects naturally branching out from these investigations. But, for to-day, let us content ourselves with issuing from these shady precincts to refresh our eyes in the open air with the living Venetian light, and with the beauty it bathes and glorifies, our weary minds. The gondolier awaits us at the *traghetto*, and what a splendor breathes around, as the lively black swan of a boat swims with us up the Canal Grande! the eyes of that most prying yet liberal connoisseur, the Sun, finding out on the walls beside us every curious and minute beauty, every wreathing curve in those graceful window-arcades, every leafy crown of their delicate shafts, and setting them off with all the eloquence of vivid, ardent light, and the most emphatic strokes of deepest shadow. Descending cloudless opposite, he has restored for a few moments the forgotten gilding of the Casa d'Oro (the Cas Taglioni, in other words), that most lightly fanciful and ornate gem of fifteenth-century Gothic in Venice, which is so minutely delicate in its embellishments that the imagination is prone to liken it to some palace worked in filigree by faries. Now its diadem of light pinnacles shines like the lances of paladins in a line, or rather like the quaint javelins of their opposing turbaned paynimry. Tipped with trefoils, in the full blaze of sunset, its reflections beneath flash downwards long shafts or arrows of vivid gold deep into the tremulous green waters along which we float. Oh, it is pleasant—what can be more so?—to glide at such an hour along this broad sea-street, when evening seems scattering rose leaves on those verdurous wavelets; and the acclamations of vesper-bells come softened over them, and the palaces—so many stately monuments of different ages, illustrious families and deeds—sink in long vista from the utmost splendor of sunset to a solemn obscurity, which, concealing their decay, and all that pertains to the present age of sadness and unexampled humiliation for fair Italy, seems to bring back the glorious olden time to them. We are tempted to turn, and turn again, till night deepens around, and all is so lonely that the single lamp on the Rialto looks as if some solitary anchorite had lighted it, and there held melancholy vigil, praying for the departed dead, whose ruinous and deserted, or desecrated, mansions yet rise around them.

(*To be continued.*)

Succinate of Ammonia.—This is very soluble in water, and may be obtained by neutralizing succinic acid with ammonia.

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* We had better subjoin it:—'I would fain join awhile in that solemn pause of 'The Journey into Egypt,' where the silver boughs of the shadowy trees lace with their tremulous lines the alternate folds of fair cloud flushed by faint crimson light, and lie across the streams of blue between those rosy islands, like the white wakes of wandering ships." Nothing can surpass this for inexplicable confusion of images and hues, but the marvel of the thing is that it should be introduced as a description of a picture (and such a picture!) written for the purpose of making us acquainted with the imaginative powers of the painter.

From the Liverpool and Photographic Journal.

HISTORY OF PHOTOGRAPHY.—PHOTOGRAPHIC ENGRAVING.

BY H. F. TALBOT.

In pursuance of our plan of giving room to all papers, which are of importance, relating to the History of Photography, we insert Mr. Fox Talbot's Letter to the Editor of the *Athenæum*, describing the result of his experiments up to April, 1853. It is as follows:—"I now proceed to give you an account of my newly invented method of making photographic engraving upon steel. Of course, I have no need to observe that the art is at present in its infancy, but I have great hopes that it will very soon be considerably improved in all its details.

"The first thing to be done is to select a good steel plate, and to immerse it for a minute or two in a vessel containing vinegar mixed with a little sulphuric acid. The object of this is to diminish the too great polish of the surface, for otherwise the photographic preparation would not adhere well to the surface, of the steel, but would peel off. The plate is then to be well washed and dried. Then, take some isinglass and dissolve it in hot water. The solution should be strong enough to coagulate, when cold into a firm jelly. This solution of isinglass or gelatine should be strained while hot through a linen cloth to purify it. To this must be added about half as much of a saturated solution of bichromate of potash in water, and they should be well stirred together. When cold, this mixture coagulates into a jelly, which has very much the appearance of orange jelly. The method of using it is to liquify it by gentle heat, and to pour a quantity upon the centre of the steel plate. Then take a glass rod, hold it horrizontally, and spread the liquid uniformly over the plate. Then incline the plate, and pour off the superfluous gelatine. Let the steel plate be placed upon a stand, and keep quite horizontal, that the liquid may run to one side of the plate. Then place a spirit lamp beneath the plate, and warm it gently till the gelatine is quite dried up. When dry, the film of gelatine ought to be bright yellow and very uniform. If clouded bands appear upon the surface, it is a sign that there is too little gelatine in proportion to the bichromate, which must therefore be corrected. The steel plate now coated with gelatine, is ready to receive a photographic image of any object. First, let us suppose the object is one capable of being applied closely to the surface of the plate; for instance, let it be a piece of black lace or the leaf of a plant. Place the object upon the plate in a photographic copying-frame, and screw them into close contact. Place this frame, in the direct light of the sun for a short time, varying from half a minute to five minutes. Let it then be removed and the plate taken out, and it will be found impressed with a yellow image of the object upon a ground of a brown color, as might be expected from the well-known photographic property of the bichromate. The plate is then to be placed in a vessel of cold water for a minute or two, which dissolves out all the bichromate and most of the gelatine also, from the photographic image, *i. e.* from those parts of the plate which have not been exposed to the sun, being protected by the object; while, on the contrary, it dissolves little or none of the gelatine film which has been fully exposed to the sun's rays. The consequence of which is, that instead of a yellow image we have now a white one, but still upon a ground of brown. The plate is then removed from the water into a vessel of alcohol for a minute, it is then taken out and placed upright on its edge in a warm place, where, in the course of a few minutes, it becomes entirely dried. This terminates the photographic part of the operation. If the plate is carefully examined while in this state, it appears coated with gelatine of a yellowish brown color, and impressed with a white photographic image, which is often eminently beautiful, *owing to the circumstance of its being raised above the level of the plate by the action of the water.* Thus, for instance, the image of a piece of black lace looks like a real piece of very delicate white lace of similar pattern, closely adhering to, but raised above the crown and polished surface of the plate, which serves to display it very beautifully. At other times the white image of an object offers a varying display of light when examined by the light of a single candle, which indicate *a peculiar molecular arrangement in the particles of gelatine.* These photographic images are often so beautiful that the operator feels almost reluctant to destroy them by continuing the process for engraving the plate.

"In order to explain how such an engraving is possible, it is, in the first place, to be observed that the photographic image differs from the rest of the plate, not only in color, but, what is of much more importance, in the thickness of the film of gelatine which covers it. The coating of gelatine on the rest of the plate is, comparatively speaking, a thick one, but that which originally covered the image has been mostly removed by the action of the water, a small portion, however, almost always remaining. It therefore naturally happens that when an etching liquid is poured on to the plate, it first penetrates through the thin gelatine covering the image, and etches the steel plate beneath. But the next moment it penetrates likewise through the thicker coating of gelatine, and thus spoils the result by etching the whole of the plate. Nitric acid for instance, does this, and therefore cannot be employed for the purpose. Since the other chemical liquids which are capable of etching steel have a certain analogy to nitric acid in their corrosive properties, they also for the most part are found to fail in the same manner.

"This was a difficulty. But after some researches I found a liquid which etches steel perfectly well, and at the same time is free from the inconvenient property of penetrating the gelatine film. This liquid is the bichloride of platinum. In order, however, to use it unsccessfully, it must be mixed with a certain quantity of water, neither more nor less (I mean, to any material extent), otherwise its action becomes irregular. The best way is to make a perfectly saturated solution, and then to add to it one-fourth of its bulk of water. Then correcting this by a few trials, a solution of proper strength is finally obtained. Supposing, then, that we have prepared such a solution, the operation of etching the plate is performed as follows:—The plate is laid on a table, and a small quantity of the bichloride being poured upon it, it is to be rapidly diffused, and spread over the whole plate with a camel-hair brush. Not much liquid is poured on, because its opacity would prevent the operator from distinguishing the effect produced by it on the metal. For this reason it is hardly necessary to make a wall of wax round the plate: that is, if the portions to be etched are confined to the central part of the plate, and do not approach very near to the edge. The effect of the liquid upon the plate is not at first visible since it disengages no gas, but after the lapse of a minute or two, the white photographic image begins to darken, and soon becomes black in every part. When this change is complete, the image often looks very beautiful though quite altered from what it was before. The operator should carefully watch the image until he thinks that it is finished, or not likely to be further improved or developed by continuing the process any longer. He then inclines the plate gently, and pours off the liquid by one corner of the plate. The plate is then dried with blotting-paper, and then a stream of salt water, which is better than fresh water for this purpose, is poured over the plate, which removes all traces of the etching liquid The plate is then rubbed with a wet sponge or linen cloth, which in a short time detaches and removes the film of gelatine, and discloses the etching that has been effected. When the object is not of a nature to be applied directly to the surface of the plate, the most obvious method of proceeding is, of course to place the prepared plate in the focus of a camera, and to direct the camera to the object. But in consequence of the low degree of sensitiveness of bichromate of potash, this would take, generally, too long a time to accomplish. The better way in practice, therefore, is to take a negative photograph of the object on paper with a camera, and from this to obtain a positive copy either on glass or paper, which should be very uniform in texture and moderately transparent. Then this positive copy is placed on the plate in a photographic copying-frame, and being placed for a few minutes in the sun, it impresses the plate with a photographic image; which image, etched as above described, and printed off upon paper, will finally give a positive representation of the object. If the object depicted upon the plate by the sun's rays is broad and uniform, for instance, the opake leaf of a plant, then, of course, the etching is uniform also. When this is printed off, it produces an effect which is not always satisfactory. I will therefore now explain a modification of the process which destroys this uniformity, and which in many cases produces a great improvement in the general effect.

"For this purpose I must remark, in the first place, that if a piece of black gauze or crape is the object selected for representation, it produces an engraving of itself which is marvellously accurate. But when two folds of the gauze are laid across each other obliquely, then the resulting engraving requires a lens in order to separate from each other and distinguish clearly the lines belonging to the two portions of the gauze. Now, if this engraving is printed off, the result offers the eye at a moderate distance the appearance of a uniform shading. Now, I avail myself of this circumstance to modify my original process as follows:—suppose the object to be the opaque leaf of a plant of irregular outline, first, cover the prepared plate with two oblique folds of black crape or gauze, and place it in the sunshine for two or three minutes. The effect of this is to cover the plate with a complicated image of lines passing in all directions. Then the leaf is substituted for the crape, and the plate is replaced in the sunshine for two or three minutes more. The leaf being then removed from the plate, it will be seen that the sun has obliterated all the lines that were visible on the parts of the plate exterior to the leaf, converting all those parts to a uniform brown. But the image of the leaf itself is still covered with a network of innumerable lines. Now, let this be etched in the way already decribed, and let the resulting etching of the leaf, which when beheld by the eye at a certain distance appears uniformly shaded, but when examined closely is found to be covered with lines very much resembling those produced by an engraver's tool, so much so that even a practical engraver would probably be deceived by the appearance. This crape arrangement I call a *photographic veil*; and as I think it likely that the idea will prove useful, I will make a few more remarks upon it. It is clear that an arrangement composed of two thicknesses of ordinary crape or gauze is but a rude attempt at a photographic veil. To realize the practical utility that may result from the idea, supposing it to be borne out by further experience, it would be proper to fabricate a much finer material, and to employ five or six thicknesses of it, or else to cover a sheet of glass in any convenient manner with an innumerable quantity of fine lines, or else with dots and specks, which must be opaque and distinct from each other. The result of practically employing such a method, supposing always that it answers in practice, as I think it probably will, would be an etching apparently uniform, but really consisting of separate small portions, in consequence of which it would hold the ink much better, and other obvious advantages would also be obtained. Another mode of accomplishing the same object is to cover the plate originally with an acquatint ground. But then a fresh one would be required for every plate, whereas a single *veil* would serve for any number of plates in succession. Experience alone can decide between these different methods. When the etching is finished, the plate should be very soon coated with wax to protect it. A few hours exposure to the atmospheric air rusts and destroys the etchings when newly made, although it does not do so afterwards. The oxidation only attacks the lines of the etching, the rest of the plate sustaining no injury, if the air is tolerable dry.

"Having thus described the method of producing the photographic etchings, it would, I think, extend this letter to too great a length were I to add any remarks upon the theory of the process, which will better be deferred to another opportunity."

LACOCK ABBEY, *April* 25.

ARSENITE OF AMMONIA.—To prepare this take a strong solution of arsenic acid, and saturate it with the liquor of sequicarbonate of ammonia, and then evaporate and crystalize.

MAKING LIGHT OF PHOTOGRAPHY.

PHOTOGRAPHY IN A DETECTIVE LIGHT.

It will be remembered by the friends of Mr. Pickwick, that, when that immortal gentleman was conveyed to the Fleet, in the delicate matter of "Bardell *v.* Pickwick," his first intimation of his being a prisoner, was, by his having to undergo the ceremony of "sitting for his portrait;" which ceremony consisted in the Turnkeys making a careful inspection of Mr. Pickwick's person and features. This was a method of taking mental Daguerreotypes which proved highly disagreeable to Mr. Pickwick; and has doubtless given pain to many others. But, as the world grows older, it grows wiser in refining methods; and so, this system of portrait-painting, has, since Mr. Pickwick's time, been greatly improved.

Late in the year 1852, the "Revue Génève" stated, that the Department of Justice and Police were authorised by the Federal Council to incur the charge of photographing the portraits of those persons who broke the laws by mendicancy in those cantons where they had no settlement. The verbal descriptions which had been heretofore relied on, were found to be insufficient for the identification of the offenders; the features of the beggars, beggared description.

The reformation, which had thus begun in Geneva, soon spread to France and England, and was warmly adopted by the authorities of Scotland Yard, who, in the most friendly spirit, received and recognised Photography as an able Detective. By its aid, the Force started a new paper called the "Illustrated Hue and Cry," the chief features to which were given through the countenance of that class of gentlemen who find the society of the members of the Police Force so extremely captivating. I have not yet met with a number of this paper, but I should imagine it to be almost as amusing and instructive as Madame Tussaud's "Chamber of Horrors." I can imagine its illustrations to depict the same scowling features, the same hang-dog look, the same ruffianly brutality of countenance, the same sensual, hardened, callousness of demeanor, the same illiterate, animal, demoralized, rapscalion set of rascals, as those with which the eyes and feelings of the British public are delighted in that charming Chamber of Horrors; and I would venture to suggest to the Wax-work proprietors, that if a few illustrations, on the principle of those in the "Illustrated Hue and Cry," were to be added to their catalogue, it would double the value of that most interesting and entertaining work.

In this used-up age, when the heads of the people have been placed before us, in all kinds of plates, and with every variety of dressing, the formation of a Blackguard's Portrait Gallery would probably be an event that would even make Sir Charles Coldstream's pulse beat to a new sensation. There seems a propriety in assigning a special place in the galleries of England to the portraits of England's blackguards. The old English worthies ought not to be mixed up with the unworthies. We ought not to gaze on the famous and infamous from the same point of observation; we ought not to look on the bad Mr. Goode, who ended his days on the scaffold, with the same feelings with which we should regard the portrait of any other good man: we ought not to hang the great Burke side by side with Burke the pitch-plaister murderer. To everything there should be a place; and the Blackguards should take a place by themselves, and that, the lowest.

In such an Exhibition, the Burglars would probably form the most attractive part; for it would be but natural for the thieves to "take" the most. The portraits of gentlemen who had committed arson, should be treated in a blaze of color, in the style of the fiery Venetians. Pickpockets should receive the handling of a Constable; while the murderers would, of course, be hung on the line, and would receive every attention at the hands of the Hanging Committee. Altogether, I do not see why a Blackguard's Portrait Gallery should not succeed. It would have one advantage over other galleries, in not calling people by wrong names. It would not write "the portrait of a gentleman" under the representation of a man who may smile and smile, and yet, be a villain still; while it would probably decimate half the picture galleries in England, if it could claim for its own all who came under the designation of the vulgar and expressive epithet "Blackguard."

I wonder if the blackguard's "Illustrated Hue and Cry" is still going on. I should suppose that it is, and meeting with the success (*i. e.* the captures) that it deserves; for, even while I write this, I read in the newspapers that the Governor of Bristol Gaol, as soon as a prisoner enters, takes his portrait by means of Photography, often without the prisoner's knowledge; and that, by the Collodion process, he multiplies his portrait *ad libitum*, and sends out copies to all the gaols in the country, in order to ascertain if the prisoner is known in any of them. This is certainly a novel way of "taking off" a prisoner.

Yet I will venture to suggest to the governors of goals that their ingenious device is open to certain objections. I make bold to question the supposed infallibility of the Photographic portraits taken by the police authorities; and I am even "free to confess" (as honorable gentlemen say in the House) that certain unpleasant mistakes might probably arise from the system. Let us take a case: that of Mr. Priggins, for instance.

Mr. Priggins is a constant (that involuntary) visitor at Scotland-yard, where the authorities have been polite enough to Calotype him, free of Expense. But is the portrait a satisfactory one?—by no means. For besides the distortion of features that would arise from the slightest error in focussing (your policeman being a cleverer manipulator of rascals than chemicals), Mr Priggins could assume any unusual expression that his cunning might suggest: so that, what with hocussing and focussing, the result (in a detective sense) would be extremely doubtful. But this would not be all.

In process of time Mr. Priggins would be again WANTED; and indefatigable policeman Z would direct his well-known intelligence to a renewal of his acquaintance with the late sitter's Photographic features. At length, after taking mental Daguerreotypes of every one whose name is not to be found either in the "Post-office Directory," or in the "Court Guide," indefatigable policeman Z suddenly meets with a "party," the expression of whose features—like that of the young lady who changed the wreath of roses for one of orange blossoms—is "more thoughtful than before," and is marked by the peculiar scowl, or leer, or grin, assumed by Mr. Priggins when he made his first appearance as a Photographic hero of the "Illustrated Hue and Cry." Indefatigable policeman Z casts a searching look (even as with a bull's-eye) upon the "party:" he draws from his pocket the fatal illustrated paper (which, doubtless, is regarded by many as the undoubted "Illustrated *Noose*), a quick reference to the Photographic positive regarding the identity of the gentleman before him with the gentleman who is "wanted;" and—after the manner of the stage "heavy-father," whose raddled cheeks are undisturbed by tears, as he. exclaims "No! yes!—No!—yes, it *is* my long-lost son!"—so, indefatigable policeman Z flies with open arms (and ready handcuffs) to his unsuspecting victim, whose only crime is, that his innocent features bear some sort of likeness to the "counterfeit resemblance of" the gentleman in difficulties, who, under a prophetic sense of coming danger, had contrived to impose both on the camera and the constable.

So that, after all, you must not be too sure but that your Photographic Positives may sometimes turn out to be Negatives: neither must you imagine that a Royal-road to thief-taking has been discovered through the medium of Photography. The Camera, like the stage, "holds the mirror up to Nature;" but the actor occasionally makes that mirror a distorting one.

PHOTOGRAPHY IN ALL MANNER OF LIGHTS.

In whatever light we may regard Photography,—whether we look at in Mr. Stewart's Pantographic Process, or in Dr. Wood's Catalissotype Process, or in Mons. Niepce's Heliographic Process, or in Mons. Tardieu's Tardiochromic Process, or in Mons. Daguerre's Daguerreotype Process, or in Mr. Fox Talbot's Photogenic Process, or in Mr. Talbot's friends' Talbotype Process, or (again) in Mr. Talbot's Calotype Process, or in Mr. Scott Archer's Collodion Process, or in Mr. Maxwell Lyte's Instantaneous Process, or in Mr. Weld Taylor's Iodizing Process, or in Sir David Brewster's Stereoscopic Process, or in Mons. Claudet's Accelerating Process, or in Mr. Anybody's Paper Process, or in Sir William Herschel's Photographic Process,—in whatever light, and under whatever alias, we may regard Photography, we cannot but fail to see in it much to interest and amuse. Of its benefit to the human race we can even now form something more than conjectures, by glancing at the variety of its performances, and the various uses to which the art has already been applied: for the human face divine has by no means monopolised the attentions of our friend Camera.

It has now become a matter for history, that her Majesty was enabled by photographic agency to trace the progress of her people's Palace at Sydenham through every phase of its crystal beauty. Her personal visits, although numerous, would have failed to put the Sovereign in possession of the progressive details of the building; but Mr. Philip Delamotte, by a wave of his Enchanter's Wand, could summon up before his Queen the shades of changing and passing forms, and could bid the spirit of the scene to rise before her. Afar from the spot, and in the retirement of her own castled home, the Royal Lady could sit and mark that Crystal Palace springing silently into perfected beauty: like a second Solomon's temple,

> "No hammer fell, no ponderous axes rung;
> Like some tall palace the mystic fabric sprung."

How wonderful the art that could achieve such magic as this!

In a like manner to Mr. Delamotte did Mr. Fenton take Photographic views of the progress of Mons. Vignolle's bridge across the Dnieper at Kieff. Every pile was there, and even every little wave that beat against it. What fairy wonder was ever like to this!

From these cases, it wil be obvious, that Photography can be made most serviceable to Engineers and Architects, in illustrating—either for themselves or their employers—the progress of the works on which they may be engaged. Accurate ideas may thus be obtained of newly-built mansions, churches, or public edifices. Indeed, Estate agents are already awake to the advantages of the art; and, in place of the gaudily-colored idealities which they were in the habit of exhibiting as the correct representations of the villas and mansions of which they had the disposal, many of them now set before you the less attractive, but more faithful Calotypes. May such truth-telling prosper as it deserves!

Artists and Sculptors, too, can make abundant use of Photography. If Mr. McGuilp merely desires a chiaroscuro study,—instead of keeping his model for hours and paying him accordingly, he can put him before the Camera, and get all his muscular developments in a twinkling. If Mr. Chalk is desirous to take a copy of his picture, or Mr. Chisel of his statue, before those productions of art leave their respective studios for the galleries of their respected purchasers, what do Messrs. Chalk and Chisel do, but call in the aid of our friend Camera.

The proprietors of our great Illustrated Newspaper would tell you that our friend was one of their most valuable contributors; and that he gives them portraits of persons, places, and things. Perhaps the day is not far distant, when their paper will receive the greater part of its illustrations through Photographs which have placed the object immediately upon the *wood*, and have been at once engraved, without the intermediate aid (and expense) of the draughtsman, and, of course, with greater claims to accuracy of delineation. In the *Art Journal* for August, 1853, appeared a small wood engraving, being a reduced copy (some twenty-four times less) of Mr. Nasmyth's map of the moon, photographed upon the wood in a manner suitable for the graver, by the Rev. St. Vincent Beechy, and engraved by Mr. Robt. Langton, of Manchester. This is but the first fruits of a harvest, the magnitude and importance of which I may conjecture, but will not pretend to determine. I need only refer to the Photographs of celebrated line engravings, that the reader may not altogether forget those most lovely specimens of this most lovely art. It may be that we shall live to see it no uncommon thing for books to be illustrated with genuine Photographs—not that the engraver need despair, for *his* art can never perish.

There is one use of Photography which may be carried out, and probably *will* be, to a far greater sphere of usefulness than it has yet reached; and that is, its application to MSS. and catalogues of books. That interminable Catalogue of the British Museum, which seems to be "not for an age, but for all time," and appears as if it would not receive its completion until the Greek Kalends,—might be made of unusual value if it contained small Photographs of the title-pages of its principal works, more particularly the older ones. They manage these things better in France, where they have got the start of us, by illustrating, in the manner just mentioned, the Catalogue of the National Library of Paris. As to old and valuable MSS. which are at present lost to the general world, accessible only to a few, how many of them might be made public, "in faultless fac-simile, without trouble and expense," merely by an application of our friend Camera! Mr. W. J. Thoms, F.S.A., states, that he thus saw two pages of a fine old folio edition of Aldrovandus, with a woodcut on one of them, exquisitely and distinctly copied, though the copy was only about an inch and a quarter by two inches. And, Mr. Thoms further states, that an accomplished Photographic amateur, having had occasion to make an official return of which he wished to retain a copy, saved himself the trouble of re-writing it, by taking a Photographic copy. Might not Public Offices,—and especially Will and Record Offices, take a hint from this?

The Camera has been introduced to the Microscope, and they have been so mutually pleased with their acquaintance, that they have agreed to assist each other in the production of pictures. They will be the Lee and Cooper, among the R.A.'s of the Scientific Academy.

Perhaps, indeed, their Scientific Academy would soon outrival Messrs. Lee and Cooper's Royal Academy. Already, and quite as a matter of course, has our friend Camera begun to throw open his Picture galleries. Besides the "Photographic Society," which gave its first annual Exhibition in Suffolk street, Pal mall, January, 1854.

In our Observatories at Greenwich, and elsewhere, the night work has been annulled by a little Photographic watchman, who takes all the duty and responsibility upon himself, and is never caught napping. Winds and storms now register their own doings, and write their own truthful memoirs; while Mr. Brooke's Cylinder of Photographic Paper makes revolutions of a far more useful kind than you would meet with in Spain.

Far away, out in mysterious Egypt, on certain ruins there are certain inscriptions which are at too great an elevation to be deciphered, and remain an agonising mystery to all curious travellers; when, forthwith, steps in our friend Camera, puts up his eye-glass, and reads you the riddle, as easily as the Sphinx would read the second column of the *Times.*

But what is there that our friend Camera will not do? If I go upon the Continent there he is before me, sketching glorious old Gothic churches and crumbling ruins. If I wander into the green lanes and leafy dells of my own sweet country, there is our friend upon his tripod, making ready to carry off the village church, and even the sexton himself. If I betake myself to the fenny flats of the eastern Counties, and imagine myself to be remote from civilization, lo! and behold, there is our friend with his apparatus on his back, going the round of the scattered farmsteads, and persuading fond mothers not to neglect the present favorable opportunity of securing likenesses of their children.

Camera even goes out to the Crimea, into the very thick of the fight; and, of his doings there we occasionally catch a glimpse through the columns of the "Illustrated News." I read in the papers, too, that the Photographers in the camp of our brave Allies have already sent to France numerous pictures of the campaign.[*] And, the other day, I read of an enthusiastic amateur of Bourg, named Daviel, who (after the fashion of Vandevelde) was very coolly photographing a hot engagement between the Turks and Russians near Kars, and was cruelly interrupted, in his pursuit of scientific pleasure under difficulties, by the Russians coming upon him in their full retreat, and carrying him away captive, together with his apparatus.

Out to the Baltic, too, goes our friend Camera; and, so rapid is he with his pencil, that he will sketch you the Three Crown Battery at Copenhagen, being on board her Majesty's ship, which is sailing merrily along at eleven knots an hour. Then he goes to see his friend Mr. Kibble, of Glasgow, and, in a twinkling, he puts down for him, in black and white, the exterior of the Glasgow Theatre, and the crowd of people thronging its doors. With the same rapidity, too, did he sketch the ceremonial attendant upon the opening of the Sydenhal Palace,[†] giving you, in a moment, faithful likenesses of all the Royal and distinguished visitors, with hundreds of other figures, all correctly delineated on a piece of glass measuring three inches by five.

But it little matters to him of what size his pictures must be. He will take you the size of life; or he will make for you a miniature copy—inch size—of the "Times" newspaper—though you must make use of a powerful glass if you wish to peruse its leaders. Indeed, if he takes a miniature of you or me,—and he (or we) should afterwards wish it on an enlarged scale, he can even, with the help of his friend Mons. Heilman, successfully get over this difficulty.

In short, what cannot our friend Camera do? Although young, he is such an extraordinary fellow, that I shall not feel surprised at anything that I may hear of him. Shall you?

From the Jour. of the Phot. Soc.

AN ACCOUNT OF AN EXPERIMENT ON THE SUN'S ACTINIC POWER.[‡]

BY J. J. WATERSON, Esq.

The following is an account of an experiment I made in Bombay, in November, 1855, on the limit of photographic power of the sun's direct light. It was made with the view of obtaining data in an inquiry as to the possibility of measuring the diameter of the sun to a very minute fraction of a second, by combining photography with the principle of the electric telegraph: the first being employed to measure the element space, the latter the element time. The result is, that about one twenty-thousandth of a second is sufficient exposure to the direct light of the sun, to obtain a distinct mark on the sensitive collodion-plate when developed by the usual processes.

A circular wooden disk, 19 inches in diameter and half an inch thick, was mounted on an iron axis, so that it revolved easily by an impulse given by pressing the finger with a jerk on the outer edge.

About half an inch from the rim there was a circular aperture half an inch in diameter, at the back of which the black paper was pasted. This paper was perforated by a needle, leaving a hole $\frac{1}{60}$ th of an inch in diameter. It was found that the utmost velocity that could be given to the disk was five revolutions in a second; and after four seconds it was reduced to three revolutions per second. At each revolution the space described by the whole was about 50 inches.

The revolving disk was placed behind the folding-doors of a darkened chamber, so that when one wing was opened to the extent of a few inches, the sun's light struck the disk at the lower part of its revolution. Having made the preliminary arrangements, the observation was as follows;

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[*] Mr. Nicklin, the Photographer, sent out to the seat of war by the English Government, was lost, together with his assistants, in the wreck of the *Rip Van Winkle,* which foundered in the hurricane off Balaclava, November 15th, 1854.

[†] Exhibited on the evening of the same day, by Mr. William's, at Lord Rosse's *soiree.*

[‡] Notices of the Royal Astronomical Society, vol. xvii. p. 205.

First, the maximum rotary motion was given to the disk. A prepared sensitive plate was held close behind the disk (about $\frac{1}{4}$th of an inch from it), at the part where the sunshine struck. This plate was kept slowly moving in the direction of the radius of the disk. An assistant quickly opened and shut the door, allowing the sunshine to act for about a second. The latent image on the plate being developed, was found to consist of four or five concentric lines. This was repeated several times with different plates.

Taking the velocity of the aperture to be 150 inches per second, which is certainly under the mark, and the breadth of the hole $\frac{1}{60}$th of an inch, the duration of the sun's full action on any one front must have been about $\frac{1}{9000}$th of a second.

The photographic process employed was as follows:

Albumen on glass, iodized by tincture of iodine, 20 grs. to 1 oz. of spirit.

The silver bath, 50 grs. nitrate of silver to 1 oz. water, and 12 drops nitric acid.

The developing solution, three parts water to one of acetic acid, and the mixture nearly saturated with protosulphate of iron.

The above was afterwards tried comparatively with the collodion process, and found to be considerably inferior in quickness of taking an impression, the ratio being 2 or 3 to 1.

From the Liverpool Photographic Journal.

LIVERPOOL PHOTOGRAPHIC SOCIETY.

The first monthly meeting of the fifth session was held on Tuesday evening, the 22nd Sept., at the Royal Institution, Colquitt Street. The chair was occupied by Mr. Corey, one of the vice-presidents, and there was a fair attendance of members.

A number of specimens of the photographic art were exhibited: the most important and interesting being a series of stereoscopic views from Egypt, taken by Messrs. Frith and Wenham. They were much admired, as also was a portfolio and large prints, by Bisson Freres, Mr. Fenton, and Messrs. Le Gray, Belloc, Baldus, and Braun, forwarded for the inspection of the Society by Mr. Cros, of Bold Street. A marine view, by M. Le Gray, displayed with remarkable fidelity the breaking of the waves upon the sea shore. That this effect had been legitimately obtained by instantaneous action, and not "put in" by the ingenious artist, was evident by the general appearance of the picture, the whole of the waves bearing testimony to its accuracy and honesty. The Chairman exhibited several very beautiful collodion pictures, taken on board a yacht, by Mr. W. J. Cox, of Devonport.

The Hon. Secretary (Mr. Keith) drew attention to the great advantages which are likely to fall upon photography in general, and the impulse that will, in all probability, be given to the art, by the establishment of the "Architectural Photographic Association"—a society which numbers among its promoters some of the leading architects of the country, and which had received the sanction of some of the most eminent photographers of the day. He said he had received a copy of the report of the Provisional Committee, from which it appeared that one of the objects of the Association was the procuring and supplying its members with photographs of architectural works of all countries. It was thus eminently calculated to be of benefit to the architectural profession, by obtaining correct representations of those works, and to the public, by diffusing a knowledge of the best examples of architecture. As the society would have no vendor's profits to pay, it would not only be able to supply its members with the best photographs, at considerably below the selling price, but would be in a position to form a collection of photographs; and their exhibition, from time to time, might be made to further the interests and objects of the Association. Mr. Ellison, of 33, Bold Street, is the local Hon Secretary.

Mr. J. A. Forrest (Treasurer of the Society) announced that he had prepared a book for the reception of photographs by members of the Society, whose property it would be, and remain at the Institution. He should be happy to receive contributions, with detailed descriptions of the modes of printing. It would form an excellent record for reference at any time.

Mr. Bell presented, for this purpose, four wax-paper specimens (views at Malvern), which he had prepared during the recess and Mr. Forrest contributed twenty-six impressions of his own.

The Chairman exhibited a photograph of Broadway, New York, taken by Mr Ross, of that city, with his "scioptric camera." It had the peculiar quality of exhibiting both sides of the horizon at once a feature, which elicited the remark, that when Mr. Ross has brought his camera to perfection, he will be able to show the "middle and two ends of a barrel" at one glance.

The Chairman then proceeded to deliver the following address:—

Gentleman,—It is with more than ordinary pleasure that I greet you on this the opening evening of our fifth session; for though our numbers may be far less than could be desired, yet I am happy to acquaint you that the experiment I so long urged upon the Council to raise the amount of the subscriptions has been successful. The proceeds of these subscriptions are more than adequate to meet the demands upon the Society, and we have the satisfaction of knowing that perfect unanimity exists amongst those who have enrolled themselves in our ranks, we therefore now recommence our meetings under far more flattering auspices than at any previous part of the Society's existence.

Most of you, no doubt, have been able to get away into the country, to enjoy the beauties of the scenery, the fresh air, and the change of ideas; few, doubtless, would think the recreation complete without the camera, and have seasoned your relaxation with what the unitiated are pleased to designate increased labor and anxiety: we pity their want of taste, and look forward to a vast increase in our store of knowledge, by each bringing to the general stock the result of their experience and the consequences of their observations: no matter how insignificant such details may seem at the time, they will be of inestimable service in testing manifold speculations and theories which may have passed current for sound doctrine; for, be it remembered, our practice is of so recent date that much of it is derived from the unsupported dicta of enthusiastic, and in many cases, visionary experimenters. Another consideration also that would render sound practical information more than ordinarily acceptable is the fact of the *litera scripta* being at present very bare and meagre, the English Journals, with the exception of *The Notes*, are almost devoid of interest, and their editors driven for lack of matter to compilation from old and almost forgotten authors,* or else to fill up space with topics not strictly within the sphere they profess to confine themselves to. The American is only a *resume* of the most notable matter of the English; the Bombay, it is to be feared, have other occupations than the camera, for their publications have not reached us; and even the French periodicals—those fertile fields for the journalist, whence most of our flowers of composition have been culled—are only filled with abstruce calculations of the everlasting phenomenon of the stereoscope, or else retaliations of our own reports from them. The only real novelty of which we can speak would have been presented to you this evening in a far more practical and elegant form than was ever contemplated by its originator, M. Sella, but Mr. Forrest is not yet quite satisfied with the present stage of his experiments. M. Sella has certainly started a principle, which, if it can be carried out as it seems likely from the ample evidence we have, will solve the enigma of the stability of photogenic prints, and bid fair to secure for its authors the princely premium of the Duc de Luynes, for the very liquid with which we write bears testimony to the all but imperishable qualities of the system.

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* Better to revive "forgotten authors" of repute, than to fill our pages with the rash "dicta of enthusiastic and, in many cases, visionary experimenters."—Ed. L., & M. P. J.

It appeared as though in our haste to secure all the prominent nuggets, we have rushed forward searching only for what the nobler metals, gold and and silver, could produce; by-and bye we find that platinum (less valuable than the first, but almost quintuple the price of the latter) was a promising fixing reagent; but at last it is perceptible that there are very many grains of quality in the baser metals hitherto overlooked, that in the aggregate will more than repay the labor of a painstaking research; for you who have read on this interesting topic, will know that iron, just as it is suited for the purpose of the handicraftsman better than the kingly metal, gold, seems also in photography more fitly adapted to withstand the assaults of all conquering time; farther than this, copper, heretofore regarded at least as useless, nay almost considered pernicious, now plays a very prominent part, and will eventually figure very efficiently as a medium for conveying the mimic patterns that light brings to our notice and regard. It is highly amusing to contemplate the way in which that fosterer of all that savours of talent—viz., Mr. Sutton—chants his "Io Pæan," on the more than probable success of the gallate of iron, alias writing-ink, by whose indelible means it appears our proofs are to be secured from "fading away." We perfectly coincide with him, and believe that, as the value of the deeds and parchments that secure to us our property depend upon the unchangeable quality of the ink[†] by which the conveyancer has engrossed them, so the proofs accomplished by his sturdy old endurer—iron, if treated by the least corrosive of all the acids, or, in other words, that best capable of resisting the attacks of oxygen, hydrogen, and sulphur, the sore destroyers of our most cherished labors, will be the most likely to be handed down to succeeding generations: and I will ask all presant if they can be sure that their best efforts at present will abide until the son that is born to day shall live to have his intellect so enlarged as to comprehend the efficacy of his father's work.

It may be expected I shall carry out my own precept, and set the example by narrating my own observations during our recess. These, from the pressure of more important engagements, have neither been so important nor so numerous as I could desire; but they have been chiefly directed to the quality and condition of baths, both positive and negative, and, I am bold enough to say, hints based upon actual experiment will be worth attention on this fundamental principle of all good pictures. A good working collodion is of most material importance, doubtless; but its place may be supplied by albumen. Not so a defective bath; nothing will avail you if this be wrong. Nor do we attach that importance to any infallible form of developing agent, such as two subtile disputants of the present day are waging amicable war about just now. I have too high a value for both of them to venture an opinion in behalf of either. I will only invoke your admiration of the consummate skill displayed in the special pleadings on each side, and return to the matter in hand. The primary strength, is too generally supposed to continue so long, or nearly so long, as the liquid remains in available quantity; for it is believed that, if the silver be abstracted by repeated immersion of plates, a proportionate bulk of water hangs to those plates, hence the balance of strength remains much the same, though the volume is diminished; and this error I have seen confirmed by the use of the hydrometer, for the experimenter has triumphantly pointed to the scale as exhibiting the proper standard of argentine salts in it. True; but what have those salts become? Look at the hue of the liquid, and say what is the cause of that yellow tinge. Why the redundancy of iodide, that has become generated by repeated immersion. True farther; it is the iodide that forms the nascent image, but it is only by a preponderance of nitrate, which after a time can hardly be said to exist; it is then inevitable that the bath must be strengthened, and much of this iodide removed. How? Thus: determine how much more of the crystallized (not fused) nitrate you intend to add; put just so much water into your bath as would be requisite to dissolve it at the rate of thirty grains to the ounce; the iodide that was soluble in the bath of previous strength is no longer so, and the solution becomes turbid; leave this a whole night and it will be found, precipitated at the bottom of the vessel; pour off the clear liquid in the morning, dissolve in it the nitrate of silver previously resolved on, add about as many drops of nitric acid as you have super-added ounces of water, (more may probably be necessary for reason beyond the limits of this paper to describe) you will then find your bath in all its pristine efficacy. Now as we have seen that the acidity of the positive bath is a matter of primary importance, so the utter absence of that acidity is of equal consequence in the negative bath. While out with two of our most esteemed members during the hottest day of this summer, I could not, with all my best endeavors, get intense negatives, while these gentlemen with the use of the same chemicals had no such difficulty, they were working with plates of stereoscopic size while mine were twelve inches square. On examining my bath on my return I found it to be powerfully acid; in their small plates this had not mattered so much, but the aggregate quantity had been fatal in the immense surface of mine. I evaporated the whole eighty ounces to dryness, urged on the heat till I saw fumes of nitrous gas evolved; dissolved again, and have since had no such difficulty.

Before concluding I would again urge upon the members the expediency of raising the dignity of the art beyond the mere toy of the fancy, or the recreation of the leisure hour. The known fidelity of photography has caused it to be received ere now as evidence in a court of justice; why then should we not exercise its faculties to record all great events, such as those that teem with good to the rising generation, like the laying of the foundation stone of the future library, or to chronicle the vast changes that are continually being made to improve this thriving town? Already we have lived to regret that there is nothing extant to remind us of the quaint old edifices, that while they encumbered the thoroughfares yet gave a picturesque interest to the streets and lanes, many of which there may be an urgent necessity hereafter to recall. I before insisted on this while having the honor to preside over your meetings, and I again press it on your notice. I also urged you to use it as a means of representing the physical peculiarities of the human species, of which so endless a variety are daily to be seen crowding this busy port. To the ethnologist this would present a volume of the most undying interest; but like many other and nobler "enterprises of great pith and moment, its current" is turned "awry," and it has lost "the name of action."

Mr. Newcome, of the London school of photography, exhibited a very ingeniously contrived portable collodion knapsack camera, containing everything necessary for a photographic campaign, the whole not weighing more than eighteen lbs., respecting which he gave the following particulars:—

The camera presented for notice this evening is perfectly adapted for the manipulation of collodion in the open air. The short exposure required for the wet collodion process will probably long give it the precedence of other modes of photography; and, when the pictures thus taken can be developed, fixed, and varnished on the spot, they afford great satisfaction to the laboring photographer. Unquestionably it is better to return home with a day's spoils, which one can contemplate as so many "birds in the hand," than to ruminating on the possibility of having to trudge over the two weary miles again to-morrow, because the undeveloped negatives *may* not be perfect.

The requisites for a perfect out-of-door camera (which do not seem hitherto to have been completely attained) are—

1. Lightness.
2. Portability.
3. Facility for certain and rapid manipulation.

1. The collodion knapsack may be considered light, for the entire weight, with all the apparatus and *fluids*, is eighteen lbs. The apparatus consists of—

[†] Writing ink is *not* unchangeable—carbon, or *Indian* ink, *is* unchangeable. Time, "that teacher of hard and unpalatable truths," has shewn, that ink exposed to damps and an impure atmosphere, will change. Mr. Sutton, with his chant, is "a day *before* the fair."—Ed. L. & M. P. J.

Two gutta percha bottles for developing and fixing solutions, each holding eleven ounces.
One ditto of twenty-four ounces, for water.
Collodion bottle.
Reserve box, containing bottles for the chemicals, developing glass, &c.
Gutta percha developing tray.
Plate box for eleven plates, seven inches by five and a half inches.
Water-tight nitrate bath (fitted).
Gutta percha developing tray.
Dusters and glass cloths.

These articles are packed inside the camera, which may then be folded up, and enclosed in the leather knapsack, with straps, &c.

2. The portability of the camera is owing partly to its small dimensions, and partly to its knapsack shape, as it may easily be strapped on the back. When opened, the knapsack cover forms a tray (with a handle formed by the straps), in which the chemicals, &c., are kept when manipulating. When the picture is finished, the operator may go, with his tray in one hand and the camera in the other, in search of a new subject, without the trouble of repacking.

3. The certainty and rapidity of its action has been already proved by the hundreds of negatives taken with it. In one morning (on the crowded surface of Yarmouth beach) seven subjects were selected, and photographed in little more than two hours. These advantages are owing to the ease with which the plate is placed in the nitrate bath, and transferred from thence to the plate holder; and to the developing tray employed. Inexperienced operators are precluded from any opportunity of spilling their developer, or pouring it into the nitrate bath.

The last advantage to be mentioned is, that a beginner, who has not accustomed himself to the indignity of putting his head under a black cloth (which is not always a pleasant thing to do, when in the streets, or surrounded by spectators), need not learn to do so. The manipulations are mostly performed without any particular personal restraint.

A vote of thanks were accorded to Mr. Newcome for the description of this interesting camera.

Mr. Forrest exhibited some specimens of tinted glass for vignette printing, having made some experiments by painting the glass and then burning the color in. He had not, however, yet been able to get them sufficiently dense; but he had no doubt, with a little more care, he should obtain more perfect specimens. The same gentleman then read the following paper, which will be found to contain some useful and interesting statements as to the chemical changes which certain descriptions of glass undergo under the continued influence of the sun's rays:—

It is of the greatest importance to the practical photographer that he know all the chemical changes which take place in the materials he uses, and the media through which he receives the impressions he fixes. Perhaps the last thing he would think about would be that the glass in the roof of his operating room would change by the influence of light, and thus effect the chemical action of the sensitive plate. As a proof of this I now lay before the society a piece of the ordinary fifteen oz sheet-glass that has been glazed in a skylight, for three years, and you will at once perceive that the portion exposed to the light has become a purple, and the part covered with the putty retains its original color: of course all are aware that the nearer you approach the red ray the longer will the operation be before it entirely ceases. The cause of this change in the ordinary sheet glass may be traced to the use of common sand and soda-ash in the manufacture. To correct the color given to it by the presence of iron in the sand, manganese is used; this increases the whiteness of the glass at first, but it soon oxidizes by the action of light, and assumes a purple hue. To remedy this evil, all the glass for photographic rooms should be slightly tinted with blue, because it induces rather than impedes chemical action on the sensitive surface. Cobalt produces a blue, and has the advantage of not being afterwards affected by the light. Too deep a blue would seriously diminish the power of the light, and thus overbalance the advantages gained in color. There is another very important advantage in the use of blue tinted glass—the features of the sitter are not constrained by the power of the light Every artist must have felt in his experience, that unless he could get perfect repose in the sitter, the result was sure to prove harsh and unnatural, in short, be the very opposite of a pleasing portrait. I have refrained from pointing out the advantages to be gained by the use of this glass until it has been thoroughly tested by first-class operators, who, one and all, admit its undoubted merits. From my own experience, I can, with the greatest confidence, recommend it to your notice.

Mr. Keith, in corroboration of Mr. Forrest's paper, stated, that three years ago he opened a photographic room in Castle street, the glass used for the purpose being ordinary sixteen oz glass. The average sitting per day was then five seconds, but they gradually became longer, and at last they extended to ten or twelve seconds. He had recently had a new room built of blue glass, on the recommendation of Mr. Newcome, and he could now get pictures in two or three seconds. In the formation of his new room he was short of a piece of glass, six in. or seven in. long, and he filled the space with a piece of the old glass, which now has a decidedly yellow tint.

Mr. Forrest observed that photographers were now becoming alive to the importance of this question.

After some further conversation the meeting adjourned.

From the Liverpool Photographic Journal.

EXHIBITION OF ART TREASURES AT MANCHESTER.

In our last notice we remarked, respecting the department in which we class the copyists, "that the very matter-of-fact character of copyist class constitutes its chief value." It is not every one that has the taste and knowledge requisite to form a choice collection of paintings, and but to a small minority of those who do possess those essentials, the great costs of works of art places them almost entirely beyond their reach; herein is shown one of the most readily understood attributes of photography: one may have a Royal Academy Exhibition of one's own, a portfolio may contain copies, and those not so costly even as engravings, of the best works both of ancient and modern art.—The workers in the fictile arts would have been delighted to see such copies of their productions as we have in (19) and (33), Luca della Robbia Ware, by C. F. Thompson and the history of vitreous manufacture might be well told by such pictures as (No. 48), by C. F. Thompson, a crystal cup of great beauty, a gallery of sculpture besides being costly is at the best fragile, and when absolute permanency can be secured for photographs, such pictures as (66) (201) (208) (265), exhibited by the Prince Consort, and (270), exhibited by Dr. Becker, will be invaluable in this department. We have been much gratified in inspecting the numerous copies of paintings in this exhibition; for the most part they are very praiseworthy, and though it might appear to be the most easily practiced branch of the art, there is still much scope for the exercise of taste: the actinic effect of different colors is still but little understood, and we still look forward to a day when each tint shall in its photographic effect be distinguishable from others, just as the arrangement of notes in a piece of music, combined with other arbitrary symbols, conveys to us ideas of their value of time, and even of their sound. Mr. Howlett is a large contributor in this branch, and we name as good specimens of his (304) The Vision (Rankley), (302) a Cattle Piece, by Lee and Cooper, (298) Home and the Houseless (Faed), the original of which is in this exhibition (saloon E 117). (451) The Dame's Absence, is a reproduction of a charming picture by A. Rankley, in this year's Royal Academy Exhibition. (148) A Dream of the Future, one might almost suppose to be from the life, it represents a young girl about to seek her fortune in the "Great World of London." (463) Guy Fawkes, T. Brook, is from last year's Royal Academy Exhibition. (461) is an excellent picture, by H. Moore, in the Portland gallery. (462) The Ship Boy's Letter, Hook. (464) also by Hook, the original painting in the Royal Academy, is marked by almost photographic minuteness, the subject is a look out for a signal, "Her Union Jack is at the Fore" (458) G. Smith's Photographer, a picture to which we have before referred. ( ) The Pic-nic, by H. O'Neil, and (453) The Last Day of the Sale, by the same artist. Mr. Bingham's (446) is a good copy of H. Vernet's Battle of the Alma. We have numerous copies of engravings, some of them hard to be distinguished from the originals with such precision is every stroke of the graver reproduced, and so nicely the very color of the ink imitated. (457) an old print of the renowned Marshall Turrenne, remarkable for the point-lace; it is contributed by the Prince Consort, and (450) a picture of the Dutch School, an Old Woman Spinning, are exact fac-similes, as also are Mrs. Verschoyle's, contained in (455), Le Conseil Paternel, celebrated as the Satin Gown, engraved by Willie; Charles I., Napoleon I., St. Giovanni, and two others, one after L. da Vinci, and one after Raphael. (443) by Major Penrice, is a capital imitation after Mieris, L'Observateur distrait, and (444) a picture by Brothers, published by the Manchester Society, the Kiosk; in (445) we have a fine copy, by Alinari, of a fresco painting, Il Giudidzio Universale. R. Harmer's (300 and 460) Studies of Flowers, copied (says the catalogue) from engravings, are very good. (465 to 476) are copies of drawings, by Raffaelle, &c., by C. T. Thompson, of these we may notice especially, though they are all good as far as the state of originals will permit, (376) Head of Avenging Angel, (379) Passage of the Red Sea, (381) Repulse of Attila, and (470) Dante's Beatrice. Dr. Becker's (572) Lion's Jaw Bones are exceedingly interesting because the only specimens of this application of the art to anotomical purposes. (524) The Stothard Shield, by Hogarth, is good. (527 and 528) are copies, by Contencin, of crayon drawings, unexcelled in their way, they are Dr. Newman and Colonel Long. Then we come to the artist of "character," first and formost of whom comes Rejlander with his (65) Two Ways of Life, which we have already spoken of, and (340) What ails Amy, the disorder in question not being well indicated by the accessories, particularly those out of doors, but we presume it to be some phase or other of the "old, old story." (203) (309) Studies of Game, by Lake Price, can hardly be lauded too much; he is very successful with knights, as in (279, and 280), and (310). But passing by his Temptation (494) we perceive Mr. White's beautiful sunshine, which we ought to have noticed before. A lot of Studies of Arabs, Fishermen, Ships, Tents, &c., marked Grundy (212 to 215, 229, 230, 584, to 591), (534) a Savoyard Itinerant Musician. All these are rather over painted, but otherwise good pictures, both in arrangement and effect. We must recommend the attention of photographic printers to the beautiful tones of some of the specimens of mezzotint engravings in this exhibition, most of which are within their reach; we may give as examples two by W. M. Turner, (1289) Windmill and Lock, (1303) Egremont Marine; this last and others by the same artist are to some extent successfully imitated, unintentionally no doubt, by Mr. Le Gray in his sea and cloud pictures.

Our readers who may have followed us in our remarks upon the photographic collection of this Exhibition will, perhaps, wish to hear what our opinion is as to the results likely to accrue to the art therefrom; and though we have considerable diffidence in offering an unfavorable opinion of any portion of the very unique and invaluable collection at all, yet of *this* portion we can only come to one conclusion, which is decidedly unfavorable; and the only advantage that we can see is that it may be seen from it, as from all similar exhibitions, in what direction our efforts may and ought to be directed, but we are not shewn in a distinct manner what has really been achieved, nor the manner of its attainment;—the public are left entirely in the dark as to the nature of the processes used, and the more advanced student in this department is left entirely to his own resources. We cannot think our Manchester friends—zealous as they have been for the complete exposition of the art of painting,—have been sufficiently desirous of fostering its willing and able handmaid, photography. It is said, "The space that can be appropriated will not admit of more than a thousand pictures; it will therefore be necessary to exclude all that are not of first-rate merit." But it seems to have entirely escaped the directors' attention that photography has any history at all, and accordingly it is a tale untold. The Photographs here are all of the present day, and are contributed by but a few; they are not classified either as regards chronology or process, nor even in the manner in which we have so inadequately treated the subject. Then the collection is divided in such a way that a visitor who has seen but one moiety may reasonably conclude he has seen the entire. One only of the objects of the committee seems to have been effectually carried out, and that only in extent, but not in excellence. "The committe suggest that as complete a series as possible of portraits of eminent men should be included in the collection." A large series is the result of this application; but how many can be said to be first-rate? We are willing to concede that the committee have had higher and more elaborate aims; but they might surely have succeeded in getting their thousand pictures, and those, too, *all* of first-rate excellence, and such as would have amply illustrated the history of photography. More of photographic progress may be seen in our shop windows than here. The day will, however, come when the art shall be more generally understood, and a collection of photographs shall be better appreciated than now,—the very motives, invention, and execution of painters are critisized,—the materials they use are pretty well known; and, after this exhibition, (such as never was seen before,) we shall have able *cognoscenti* of the humblest classes ready to declaim upon the comparative merits of all the painters, from Cimabue and Giotto downwards. Why should not photography be made to contribute its quota to the general knowledge? Its progress, processes, and products might, we think, have been much more efficiently displayed; now we have only to thank the directors for showing us together what we might have seen at any respectable society's exhibition, and for doing so in a manner which we think has been excelled. Still we have derived some pleasure in this department; there are many works which we have named worthy of the utmost praise, and many which give evidence of a praiseworthy, painstaking labor. And now we must take leave of the exhibition, hoping that it may not be long before photography has its due. This depends much on photographers themselves. Let them bestir themselves. There is a fine wide field open for them, and room enough for all.

From the Jour. of the Phot. Soc.

GLYCYRRHIZINE IN THE NEGATIVE BATH.

King's College, Aug, 12, 1857.

To the Editor of the Photographic Journal.

Sir,—Since writing my paper on "Glycyrrhizine in the Negative Exciting Bath," I have been asked whether I would recommend it in a case like the following:—"The quantity of bath-solution is very large, and as the operator is no chemist, it would be useless to him if it were thrown out of order. I replied by calling attention to the fact stated in my paper, that curtain-marks and lines upon the film were more common when the glycyrrhizine was used, and suggested that under the circumstances it would be better to omit it.

The question is, how long does the bath retain the peculiar properties at first imparted to it? On looking over my notes, I find mention made of a solution prepared with addition of glycyrrhizine in August 1856, and this bath gives very excellent intensity at the present time. It seems, however, that acetate of silver was used with the glycyrrhizine, and hence the experiment cannot be relied on.

Three large nitrate baths, made about six weeks ago, with glycyrrhizine and a considerable excess of acetic acid, but n acetate of silver, appear now to give less intensity than at first, and consequently I have neutralized a portion of the acetic acid with ammonia. In a few months from this I hope to be able to present a further report, which will settle the question.

F. Hardwich.

From the Liverpool Photographic Journal.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

This distinguished Society has just held its twenty-seventh meeting in the city of Dublin, under the auspices of the Lord Lieutenant, to whose cordial interest the meeting owed much of its success. At a meeting of the general committee on the 1st instant, it was decided to hold the next meeting at Leeds, whose only competitor was Manchester; but notwithstanding some sort of a pledge which it was understood had been given last year in favor of the latter city, a very large majority decided for the former one. Manchester was represented at the meeting by Mr. Alderman Shuttleworth, Thomas Ashton, Esq., M. D., E. W. Binney, Esq., F.R.S., &c., and William Fairbairn, Esq., C.E., F.R.S., J. P. Joule, Esq., F.R.S., &c., two of the Vice-Presidents, and Mr. Samuel Cottam, Honorary Secretary of the Manchester Photographic Society. During the meeting the degree of LL.D. was conferred by the University upon Mr. Joule.

In section B (that devoted to chemical science) some papers were read of general interest to photographers; among which we may name Dr. Apjohn, on some compounds of cyanogen; and M. L'Abbé Moigno presented some microscopic photographs of great beauty by M. Bertsch, and some very fine copies of oil paintings by Mr. Binghan, among which, "La Prise de la Malakoff" was one of the best; and the Abbé also made some remarks on a new method by M. N. de St. Victor, of exhibiting, by means of photography, the phosphorescence and fluorescence of bodies. We are unable to give our readars an abstract of these papers not on account of the language in which M. l'Abbé so eloquently discoursed, but because he did not favor his audience with any manipulatory details. A conversation arose therefrom upon the action of sulphate of quinine and other bodies, and Dr. Gladstone remarked that the discoveries alluded to would tend to elucidate some of the more abstract properties of light, particularly the unsolved question as to what became of light after its absorption by objects struck by it.

Mr. Sykes offered some remarks on the preservation of collodio-albumen plates, which he proposed to effect by the addition of a film of metagelatine; he also asserted the right of England to priority in the discovery of photography, in contradiction of the Abbé Moiguo's claim for France. Dr. Daubeny also exhibited specimens of paper converted into parchment by the means of sulphuric acid.

Among other interesting soirées and conversaziones, was one held in the house of the Royal Dublin Society and the Mansion House joined together by spacious marquees in the grounds of the former. A series of water-color drawings of the Round Towers of Ireland excited much interest; and Messrs. Yeats and Son contributed a number of stereoscopes, with views in Ireland, Egypt, &c. Messrs. Robinson also sent microscopes, with numerous objects, among which we notice Mr. Dancer's microscopic photographs. On the table were photographs by Bewley and Evans, of Dublin, of Atlantic soundings, shewing delicate shells and infusoria. There were on the walls two very large paper portraits by Robinson, of Grafton-street, very good in their way, but showing evident marks of the artist's pencil. In a spacious room in the Mansion House was a large collection of photographs of Rangoon, Amerapoora, Tsagain, Myo, and other places of interest in the Burman empire. All these, and numerous valuble articles of Irish antiquity and natural history, afforded ample subjects for discussion by the numerous and brilliant assemblage present. An exhibition of photographs was announced by the Photographic Society, but we believe was not held; owing to the small number of contributions. We saw some very good specimens of portrait photography in Dublin, particularly vignetted portraits, or as they call them there, halotypes. Photographers have every advantage in Ireland that they can desire—fine atmosphere, endless variety of subjects, and very convenient means of reaching them; and we are rather surprised that amateurs, do not more abound, and that we see so few of their works here. Altogether, the British Association have every reason to regard their visit to Dublin as highly satisfactory; and we wish them every success at Leeds, where Professor Owen is to preside; and at Aberdeen in 1859, where the Prince Consort, it is hoped, will fill the presidential chair.

From the Liverpool Photographic Journal.

THEORY OF THE DAGUERREOTYPE PROCESS.*

BY A. CLAUDET, ESQ., F.R.S.

In a paper communicated to the Royal Society in June, 1847, an abstract of which was read before the British Association, at Oxford, M. Claudet stated that the red, orange, and yellow rays were capable of destroying the action of white light, and of restoring to the exposed Daguerreotype surface its former sensibility to white light, from the effects of which it had just been relieved by the action of the red, orange, or yellow rays. It was to be inferred from these curious facts that light could not have decomposed the surface; for if it had done so, it would be difficult to understand how the red, orange, or yellow rays could combine again, one with the other, such volatile elements as bromine or iodine, after they had once been separated from the silver. But at that date M. Claudet had not ascertained that the red, orange, or yellow rays were incapable of restoring a bromo-iodized silver surface which had been completely *decomposed* by light. The effect of light which the red, orange, and yellow rays destroy, is not sufficient to produce that thorough change of the surface, which an amount of light 3000 times greater accomplishes; in other words it is only the kind of action, that is 3000 times less intense than that which is required to produce the image without mercury—a feeble action that gives affinity for mercury,—which is destroyed by the red orange, and yellow rays. It does not seem that there can be a real decomposition during the short action which is sufficient to give an affinity for mercury, and consequently it seems to be right to attribute the formation of the image to that affinity only. White light or the rays which accompany it, communicate to the iodized surface an affinity for mercury, and the red, orange, or yellow rays withdraw it. But there is a singular anomaly which may here be noticed, viz., that when the sensitive surface is prepared with *iodine alone*, the red orange, or yellow rays, instead of destroying the action of white light, continue the action, which ends in a complete decomposition, and at the same time they carry on the action which gives the affinity for mercury. Still there is a further compound of iodine which is far more sensitive than the simple compound obtained by Daguerre's original iodizing method, which is far more sensitive than the latter, and on which the yellow, red, and orange rays exercise their destructive action, just as in the case of the bromo-iodide. The phenomenon of the continuing action of the red, orange, and yellow rays on the simple compound of iodine and silver was discovered by M. Ed. Becquerel, and soon after M. Gaudin found that not only do these rays continue the action by which mercury is deposited, but they also develop by their own power, without the agency of mercury, an image having the same appearance as that produced by mercurial vapor. M. Gaudin, not having observed the fact of the white silver deposit, which results from the complete decomposition of the surface by the action of light, could not explain the cause of the image brought out by the yellow ray. M. Claudet finds that the iodide of silver, without bromine, is about 100 times more sensitive than the bromo-iodide to that action of light which produces the decomposition that furnishes the white precipitate, or deposit of silver, while it is 100 times less sensitive to the action which gives the affinity for mercury. This seems to be another reason for supposing the two actions to be different. It may be that in the case of the iodide of silver alone, the complete decomposition being more rapid, and the affinity for mercury slower than when bromine is added, the red, orange, and yellow rays having to act upon an incipient decomposition, have the power, by their own photogenic influence, of continuing the decomposition when it has begun. This may explain the development of the image under red, orange, and yellow glass, according to M. Gaudin's discovery; but in the case of the bromo-iodide of silver, the red, orange, or yellow rays have to exert their action on the result of the affinity for mercury which the surface possesses, begun a long time before the decomposition of the compound; and they have that affinity to destroy. It would appear that all the rays of light have the property of decomposing the iodide of silver in a shorter or a longer time, as they have that of producing the affinity for mercury on the bromo-iodide of silver; with the difference that on the former compound the separate actions of several rays continue one another, and that on the second compound these separate actions destroy one another. We are to understand that, in the first case, all the rays are capable of respecting the same decompositions and that in the second the affinity for mercury imparted by one ray is destroyed by another. This would explain the various phenomena of the formation of the two different deposits already described, and also explain the anomaly of the continuation of the action of light by the red, orange, or yellow rays, according to M. Becquerel's discoveries on the iodide of silver; and of the destruction of that action by the same rays, according to my own observations, on the bromo-iodide of silver. The red, orange, and yellow rays when acting on a normal surface are much less capable than the most refrangible rays, of imparting the affinity for mercurial vapor, on both the iodide and bromo-iodide of silver; and they destroy that affinity when it has been produced on the bromo-iodide of silver by the photogenic rays. It follows that when the red, orange, or yellow rays are more abundant in the light than the most refrangible rays, the photogenic effect is retarded in proportion to the excess of these antagonistic rays. This happens when there exist in the atmosphere vapors capable of absorbing the most refrangible rays: under these circumstances the light appears yellow, but it is very difficult to judge by the eye of the exact color of light, and of the proportion of photogenic rays existing in the atmosphere at any given moment.

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* Continued from p. 332, vol. x., no. xi.

(*To be continued*).

From the Jour. of the Phot. Soc.

TRANSPOSITION OF STEREOSCOPIC PICTURES.

To the Editor of the Photographic Journal.

SIR,—Will you allow me to offer a few remarks on the subject of the necessity for reversing the position of positives printed from stereoscopic slides, in order to obtain the true relief? No doubt the observations in the leading article of the May Number of the Journal are perfectly correct; but it seems to me that the process of proof is, perhaps, too strictly logical to be readily intelligible to many who are puzzled by the fact, and that the simple explanation is, that each picture on the glass being inverted by itself, and not in relation to the other, it is necessary, in order to have the two positive pictures in their true relative positions, that each negative should, as it were, be turned over on an axis passing through its own centre; but as in placing the glass on the paper for printing, with the top and bottom in the natural position, it is inverted on the axis of the whole length of the glass, it is evident that the picture which was taken with the right-hand lens is now on the left side, and must be brought back to its original position to give the true effect, which is done by cutting the positive in two and transposing the parts.

H. M. H.

From the Liverpool Photographic Journal

CHORLTON PHOTOGRAPHIC SOCIETY.

At the fourth monthly meeting of this Society, held September 9th, in the Town Hall, Mr. HEPWORTH in the chair The minutes of the previous meeting having been confirmed, Mr. J. DRAFFIN, the Hon. Sec., read the following paper

"ON THE COLLODIO-ALBUMEN PROCESS."

No sooner had the practice of the collodion process become general than the inconveniences of a wet process for outside employment manifested themselves, and, consequently, various means were devised to preserve the sensitiveness of the plates, and thus avoid the necessity of the operator carrying a quantity of chemicals, and being encumbered with an inconvenient tent, under which he may conduct the various necessary operations. The use of deliquescent salts, that is, such as have a strong affinity for water, and which imbibing it from the atmosphere remain in a moist state, was first suggested as a likely plan for accomplishing the end desired, and the nitrates of zinc and ammonia, two of the most deliquescent of their class, were first employed. These were succeeded by the honey or preservative syrup, then by glycerine, and finally by golden syrup, each of which has had, and still had its advocates and supporters, and doubtless many beautiful pictures have been obtained by their use. Still all of them labor under one serious disadvantage, namely, a liability to the adherence of dust and other extraneous matter, to obviate which various dry processes have been suggested, one of the most successful of which is the invention of M Taupenot, and the one that in our present state of knowledge is, I think, the most worthy of our attention. As it has already been so frequently and so completely described by others it may almost appear presumptuous on my part to bring it before your notice this evening, especially as I have but little novelty to introduce. In consideration, however, of the numbers who have failed to produce satisfactory results by it, and the comparative success that has attended my own practice, I think it not undesirable to explain my mode of manipulation, as simply as possible, with a hope that those who have abandoned it will renew their efforts, and that those who have been discouraged by blistering of the film and other imperfections, will be stimulated to perseverance and finally to success.

Two or three days before preparing the plates; I make the albumen (according to the formula which I shall afterwards mention.) Filter it through a small piece of sponge, then put a small bit of camphor in the bottle to preserve it, and let it stand till wanted for use, by which time it is quite clear. I then decant off as much as is required into a clean vessel, taking care not to let any of the sediment in the bottom of the bottle get into the vessel, I also prefer this plan with the collodion, so far as allowing it to stand two or three nights before using. I do not make my own collodion, for several reasons; I think it much better where a large quantity is not used, to buy three or four ounces at a time; the collodion I use is exceedingly thin, giving a very delicate film, and also very dense, as you will see by the few specimens in the plate-box on the table: this collodion is procured from Mr. Hepworth; I have tried others, but must say there is none I have succeeded so well with for negatives as his.

The next thing to be done is to clean the plate, and I need scarcely say is a very important part. I always like to do this the night before preparing them, and proceed as follows: I select the quantity required, taking care they all fit the dark slide; any of the various means of cleaning may be adopted; my plan is with new plates, to dip a nail-brush in a solution of ammonia and spirits of wine, to scrub both sides of the glass, dip it in water and dry; I use this mixture in consequence of the plates being generally smeared with greasy matter that acids will often fail to remove; plates that have been previously coated with collodion and albumen must be steeped in a solution of potash or soda for a few hours, then washed and dried as usual. My reason for cleaning the plates the night before I prepare them, is to be rid of *the dust*, the great enemy of this or any other process.

After the plates are cleaned, I stow them away in the grooved box, and when ready for the next operation, place the box near to the fire; I may here observe that I always prepare the plates in the kitchen, because it is warm, and no danger of moisture in the atmosphere, one great cause of blister in my opinion. While the plates are warming I provide myself with three clean bowls, partially filled with clean water; for the sake of distinction I will call these bowls Nos. 1, 2, and 3. I now take out a plate, coat with collodion and sensitize in a positive bath in the usual way; I draw the plate out of the bath and place it facewards in bowl No. 1; coat another plate, place into the bath, and while there, go on washing gently the plate in bowl No. 1, and then place it in bowl No. 2, face down, draw out the plate that is in the bath, place it in bowl No. 1, as before; coat another plate and put it into the bath, and then proceed to wash plate in No. 2 bowl, and place it in No. 3 bowl, wash the plate in No. 1 and place it in No. 2. I then take out the third plate from the bath, placing it in No. 1 bowl, and put another plate in the bath; the water should be changed as soon as it becomes at all milky—I change it after each half-dozen plates are washed. I take out, after slightly washing, the plate in bowl No. 3, place it on one corner on filtering paper to drain, and proceed in this way till there are six plates draining, I then take the vessel containing the iodized albumen, and pour a small quantity very gently, so as not to *create bubbles*, into a small glass, say a wine glass, and from this glass I coat the sensitized plates, allowing the albumen to flow evenly over the plate twice; then pour off into another vessel; by pouring off into the filter the albumen may be used again the same night if required; as each plate is coated with albumen I place it at once in the oven, which should be moderately hot; the plates should stand on end on bibulous paper, and the oven should be well rubbed all round inside with a cloth some time before commencing, to remove dust and particles. The great thing in this part of the process is to avoid dust on the collodion and albumen coatings; before commencing the former, I take a large camel hair brush and stroke it once or twice over the plate to remove any dust that might adhere to it. So particular am I in this matter that I never commence work till the family have retired, when I have the kitchen to myself. You cannot successfully prepare collodio-albumen plates when other parties are about you agitating the air and keeping the dust in motion. Bubbles in the albumen should be avoided, therefore I never pour the albumen off the plate into the same vessel it came out of, pour it into the filter off the plate, and it will be ready again in case the albumen should fail in quantity.

There is another thing I should here mention; I ought to have done so in the washing process. Great complaints have been made of holes in the collodio-albumen negatives. I think I have discovered the cause. Let any one examine a prepared plate after it has been washed in common water, and he will find it covered with minute gritty-looking particles; these, if not removed, will cause holes. I always pour a little filtered rain or distilled water over the plate after taking it from bowl No. 3. Since I have adopted this plan I have got rid of holes in the skies. Whilst the half-dozen albuminized plates are drying in the oven I proceed with another half-dozen, as before, and by the time these are ready for coating with albumen those in the oven are dry; I therefore take them out and place them in a cool part of the kitchen, where the film becomes rather softer and in better condition for the aceto-nitrate bath; for when the plates first come out of the oven the film is almost as hard as the glass itself, and can scarcely be scratched. When I have got the quantity of plates albuminized and dried, I then change the water in the bowls for fresh, and sensitize the quantity of plates in the aceto-nitrate bath I may require for immediate use, washing each plate just the same as before. Well washing is very essential here; if not, stains are sure to follow. If I prepare four or five dozen plates at once I never sensitize more than a dozen at one time in very hot weather, as I am quite satisfied the plates are not so good after being kept four or five days. After all are washed I place them in the oven again to dry, and afterwards place them in the plate box ready for the camera.

You will observe that in drying I always use heat: to this, and this alone, I attribute my freedom from blistered plates. I have worked this process some time now, and have never but once encountered blisters, and that once I prepared the plates in a damp place and allowed them to dry spontaneously.

EXPOSURE IN THE CAMERA.

As to the exposure to be given in the camera, I prefer the plates to be, if anything, rather under than over exposed, because an under exposed picture can generally be brought up in the development, but it is the contrary with an over exposed picture. With a six-inch focus lens and quarter-inch stop, I give about two minutes; with a four-inch focus and a quarter-inch stop, and bright sunshine, I give forty-five seconds to one minute: it depends on the subject, whether dark or light,—bright weather is of course the best for this process in particular, but some of the negatives before you were taken in very gloomy weather. The negative of the Independent College Gates was taken whilst very gloomy indeed; time given was, with four inch focus and quarter-inch stop, three-and-a-half minutes. It was just commencing to rain as I replaced the cap.

THE DEVELOPER.

The developing solution is made as follows:—

Pyrogallic acid..................	1½ grains.
Glacial acetic ditto...............	15 drops.
Spirits of wine....................	15 "

Mix a small quantity, say three or four ounces, of a thirty-grain solution of nitrate of silver, in distilled water.

I believe many a good picture is spoiled from want of care in the developing: this is half the battle, and the slightest inattention here will upset all the care that may have been taken in the preparation of the plates.

Place the plate on a levelling stand, pour water over the surface of it to moisten the film, remove the water, and with a mixture of about six drachms of the developer and nine or ten drops of the silver solution, cover the plate. The picture will soon begin to appear. Keep the developer in motion by blowing slightly, or you may have marbling, or clouding, in the skies, which would spoil the negative. If the solution should become dirty, don't pour off, but take water and pour on the plate: this washes all off without leaving any of the sediment adhering to and staining the negative. Mix another portion of the solution, and, after pouring off the water again, cover the picture, and the developing should be complete in about fifteen minutes, perhaps sooner. A great deal depends on knowing exactly what time to stop the developing, for if you over develop the negative is too dense to print well. I make a practice of looking for the detail in the shadows; as soon as they appear, wash off and fix with hyposulphite of Soda. It is better for a picture to be under developed than over, because in this process the developing can be proceeded with at any time after they are fixed, providing the negative is not varnished. I have a plate here which I have exposed, and will develop to illustrate my plan of proceeding in this stage.

I make the albumen according to the following proportions:—

Albumen......................	2 ounces.
Water.........................	2 drachms.
Syrup.........................	2 "
Iodide of potass................	15 grains.
Bromide "	10 "
Glacial acetic acid..............	6 drops.

I may remark on this formula that more bromide is used than is usual. My reason is this—and though I am aware that there is much difference of opinion respecting the use of bromides—I believe them to enable us to obtain better delineations of foliage than we can obtain without them, and, therefore, I employ them in larger quantities than usual. The syrup used is such as is generally used by druggists, consisting simply of two parts sugar boiled with one part water. A piece of sugar added to the albumen would answer equally well. I use syrup because it is convenient to me, and is always transparent, and employ it to prevent the albumen film from cracking when subjected to heat.

Acetic acid is used partly to coagulate the albumen and render it limpid, which it does in a remarkable degree. I find it filter more easily and flow more readily over the plate, when acetic acid is used instead of ammonia, as is frequently recommended.

The acid bath I make as follows:—

Nitrate of silver	45 grains.
Glacial acetic acid	1 drachm.
Distilled water	1 ounce.

I keep a small quantity of kaolin in the bottle, which prevents the bath from becoming discolored.

During the reading of the paper, Mr. Draffin illustrated the same by exhibiting several very good specimens of negatives taken by the process, and also developed some pictures taken the day previously.

A general discussion then took place on the process; after which the thanks of the meeting were voted to Mr. Draffin for his interesting paper, and to the Chairman, which concluded the business of the evening.

ON OBTAINING PURE WHITES ON ALBUMINIZED PAPER.

Mr. Tunny has, in answer to an enquiry in *Photographic Notes*, given one of the best accounts of the preparation of albuminized paper that we have seen. He says, "I always prepare my albuminized paper with the pure white of eggs, which I believe to be preferable to all the cheaper compounds that have been substituted for it. Take any quantity of albumen with double the quantity of water, adding eight grains of chloride of ammonium to each ounce of the mixture. Whip up with a bunch of quills into a froth. The albumen will subside in an hour or two, then filter through fine linen cloth that has been previously slightly singed over a spirit lamp. Pour the albumen into a flat dish and float the paper for about three or four minutes, having folded back one of the corners of the sheet in order to keep it from coming into contact with the albumen. If the paper is pinned up by this unalbuminized corner, it will dry without the least streak or imperfection, but if the albumen comes into contact with the pin a drip will begin which will end in innumerable streaks. By this precaution much paper may be saved.

"The albumen containing the above amount of chloride requires about sixty-five or seventy grains of silver to render it sensitive. I print in the usual way, a little deeper than the finished print.

"The print when taken from the printing frame is thoroughly washed from all free nitrate of silver. Make certain of this, to make the fixing process as economical as possible, which should not be expensive if carefully done. The washed print is put into a chloride of gold bath, two grains to five ounces of water. In this bath the picture will readily change color and slightly lower in tone. After it is reduced to the required tone it is passed through water, then placed into a new hypo-bath—four ounces to ten ounces of water. The print will be perfectly fixed in fifteen minutes. Taken from this bath it is repeatedly washed with cold water, then thoroughly with boiling water. The French and German papers get from fifteen to twenty waters, the English papers part more readily with the size, and consequently fewer washings are necessary to fix the prints on it.

"In order to secure perfect whiteness it is essential not to use the hypo bath when above a day old. The whole secret of retaining the clearness of the whites, being in always using a strong pure hypo bath. By the above process I never fail in obtaining the whites pure.

"I may mention a curious circumstance of hyposulphite of soda. In some I got lately every picture that I fixed possessed that yellow old cheese-like appearance that has been so often complained of, while another sample of hypo gave me prints of absolute whiteness. In testing the solvent powers of these two I found that the first possessed only the half of the solvent power of the latter, viz;—it took double the quantity to dissolve twenty grains of chloride of silver in a given quantity of water. Whether the soda possessed other impurities I have been unable to detect."

From the Liverpool Photographic Journal.

PAPER FOR PHOTOGRAPHY.*

The sheets, after their final removal from the pack, are hung across horse-hair lines to dry; from three to five sheets being suspended together, consequently two only are freely exposed to the atmosphere. How far this condition of things may influence the result I am unable to say. It will also be observed that one sheet is in contact with the horse-hair line, which accordingly leaves a mark across the centre of the surface of all sheets so situated. These marks, however, disappear to the eye during the carrying on of the subsequent operations. The dry paper, still bibulous, is now quite ready for sizing.

On my first visit to Kent, where the experiments were carried on, I made many enquiries about the materials used in sizing, and also about the amount of boiling to which such materials were submitted; for I knew that the animal tissues and fibres which were capable of yielding a gelatinous size, were also capable of furnishing a different product on the long application of a high temperature. At Hollingsworth's, formerly "Whatman's Turkey Mill," I learnt that the hoofs and feet of animals, in a fresh or green condition, were preferred to the dried skins and "pates" commonly employed. The process was to keep such fresh materials for some days in running water to cleanse them, then they were *carefully* boiled with water, keeping the temperature down as much as possible. The liquid thus obtained was allowed to settle and cool, when the fat would be found on the surface, and the heavy impurities at the bottom of the mass, the intermediate portion being a firm well-looking jelly. This jelly is diluted with hot water to a consistence ascertained by experience, and judged of empirically by its apparent viscidity. Alum, in lump, is then added to the warm jelly in varying proportions. On this point we had no experience. The paper-maker, therefore, added as much as he thought would produce a hard resisting size. The addition of alum in great quantity causes the paper to have a "rattle" on suddenly pulling the opposite corners of a sheet held loosely and diagonally. And as the buyers are supposed to be pleased with this rattle, as affording evidence of the firmness of the fabric, the paper often gets more alum than the conditions for perfect sizing demand. The alum is found to vary very much in quality, but the best kind is of course to be selected. The size, then, consists simply of animal jelly (which is an imperfectly understood substance or mixing of substances) and alum. Coarser sizing materials may contain lime or salt, but these are avoided by good paper-makers. The lime, when present, has been used to remove hair from the skins, and the salt to check putrefaction. This, one thing is certain, that the best paper ever made for the Talbotype process was made at "Turkey Mill." where the size is prepared as above related. This paper, ream by ream, gave, as a rule, fine close black negatives; and it could be made sensitive over night with much stronger solutions of gallo-nitrate than are now recommended. The development could be deferred until the same hour the next night. It could fully be depended upon for twenty-four hours even, be it remembered, when washed over with comparatively strong solutions of gallo-nitrate.

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* Continued from p. 316, vol. x no. x.

This paper was used successfully by the Rev. Calvert Jones, about 1844, at Malta, in very hot weather, and also in the East by the Rev. Mr. Bridges. It is strange to relate that such paper has *never* been obtained since, even from the same mill; and that is why I dwell so much upon it at this moment. Could we get such paper again with certainly the Talbotype would take a new start. The only thing that could compete with it would be the transfer process applied to collodion, but that will always be a delicate, if not a difficult operation for the amateur to perform *while on a tour*. I trust these "jottings" of mine may assist in bringing about a good process for the manufacture and preparation of photographic paper, for it is certain that at present all the paper makers are working in the dark as far as principles are concerned. Cansons, the French makers, are, I am told by Dr. Warren de la Rue, noted for the insolubility of their paper-size, but unfortunately for us they will not disclose their process, consequently there can be no interchange of ideas between chemical photographers and themselves.

From the Liverpool Photographic Journal.

COLORING OF COLLODION POSITIVES.

Those of our correspondents who are interested in this subject may make their trial of either the gelatinous or the resinous coating described by a correspondent of the *Journal of the London Photographic Society*. The process is said to be easy, and will, with a little care and trouble, produce a "first-rate" effect.

I. Take ten grains of isinglass, dissolve in an ounce of warm water, and filter the solution; pour this still warm on the portrait, after well washing from the cyanide; let it dry by the fire, then breathe on it a little, and it will take the color. The usual powder colors being employed. The picture may afterwards be varnished.

II. Into a wide-mouthed bottle put a little Canada balsam, pour on some spirits of turpentine and let all stand a day or two, occasionally shaking the mixture. Add ten or fifteen drops of this to one ounce of spirits of turpentine in another bottle, well mix and filter through blotting-paper; pour this on like collodion; and thus varnished, let the plate dry before a clear fire, which will take a few minutes. For a picture intended to be *highly* colored nothing can be better than the above; but it will require care, as the color bites deep: if too much so add more turpentine.

Will any of our correspondents kindly favor us with *their* experience in tinting positives on glass, or with the result of their trials of the above substances? Much must depend upon obtaing *pure and rich* colors in *very fine* powder. It occurs to us to add that purified oxgall may be of service where anything like greasiness of surface occurs.—Ed. L. & M. P. J.

FULMINATING GOLD.

Dissolve pure gold in nitro-muriatic acid, diluting the solution with thrice its weight of water, and then drop in pure ammonia, by little and little, as long as any precipitate is formed, taking care not to add too much, because in that case part of the precipitate is again dissolved. The precipitate, which is of a yellow color, is to be washed in pure water, dried slowly upon filtering paper, and then put into a phial, which to prevent accidents, ought not to be corked, but have its mouth covered with a linen rag or a slip of paper. This powder is fulmigating gold. Its preparation is described by Basil Valentine, and its singular properties excited the attention of all succeeding chemists. It explodes when struck violently, or when triturated in a mortar, or when heated to about 400° Fahr. The noise is tremendous, and when in any considerable quantity (twelve grains for instance) it lacerates the metallic plate on which it is placed.

From the Liverpool Photographic Journal.

ON THE FADING OF POSITIVES.*

BY THOMAS SUTTON, B.A.

"By the fading of a positive print is meant the conversion of the dark material for the shadows into a pale yellow or yellowish brown substance.

"In order to understand why a print fades, we have therefore to enquire why the dark substance which originally formed the shadows becomes converted into a pale yellow substance; and it will be a question quite foreign to the enquiry, whether the yellow substance be permanent or not, inasmuch as a pale yellow substance cannot with propriety form the shadows of a picture.

"The yellow substance of a faded print is believed to be a sulphide of silver; and this yellow sulphide of silver is supposed to be permanent. At a recent meeting of the London Photographic Society, Dr. Percy stated 'his belief that the sulphide of silver was a permanent compound of that metal; but in the discussion which followed that remark he is reported to have said—'I spoke of the yellow color; it is quite permanent; for six or seven years I have never found it to change. A color of that kind is very suitable for some subjects.' When, therefore, the permanence of the sulphide of silver is spoken of, the reader must bear in mind that it is the yellow sulphide, and not the dark substance that is meant.

"The process of fading may be exhibited artificially, by the following means:—

"Take a sun-print by any of the common processes, and fix it in fresh hypo, or ammonia, or weak cyanide of potassium. Then wash out perfectly from the paper all traces of the fixing agent. The print will exhibit 'a hideous, staring brick red tint.' A simply fixed sun-print is always of the above color; it is not possible by any known means to produce a sun-print, which, when simply fixed, shall be of a dark color. A fixed sun-print is always of a 'hideous brick-red tint,' and is consequently unpresentable until it has been toned by some process. Now make the following toning bath:—To one pint of water add two drops of hydro-sulphate of ammonia. The mixture must be made out of doors, as it has a most offensive smell. (Mr. Shadbolt has lately recommended a toning bath made by adding one part of hydro-sulphate of ammonia to four parts of water; but that is about a thousand times stronger than is necessary.) Immerse the print in it and watch the changes which take place. The brick-red tint soon begins to darken; in a few minutes it passes through various shades of brown to a black, or purple black, and becomes ultimately yellow—so that the bath, which up to a certain point, tones and improves the print, if allowed to act too long, causes the blacks to become yellow.

"We have in the above experiment the whole process of toning and fading, occupying but a few minutes. The bath no doubt acts by imparting sulphur to the silver of the proof, and it appears by no means improbable, in fact almost certain, that the yellow color is produced by an excess of sulphuration. If when the print is toned to a black tint, we remove it from the bath and wash it, (not once or twice, as Mr. Shadbolt has recommended, for a minute or two,) but several times, in abundance of fresh water, so as to remove, if not all, at least the principal portion of the toning liquid from the pores of the paper, the process of toning is to all appearance arrested. But if the smallest portion of the toning agent is left in the paper, the process will go on slowly, but surely, and the print will ultimately become yellow; the process of fading being nothing more than a continuation of that of toning, the toning agent being diluted in strength, and the process consequently extending over a lengthened period of time.

"It appears, therefore, that in the process of toning by sulphur, the action of the sulphur upon the silver of the proof goes on until the whole of the silver is sulphurated to the maximum, in which state it presents the well-known yellow faded appearance. We see then, that sulphur toning is a process extremely likely to cause the ultimate destruction of a print, particularly when the quantity of silver in the print is small, as in the case of a sun-print.

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* We shall, in our next, remark upon this paper, paragraph by paragraph. It is taken from No. 36 of the present volume of *Photographic Notes*.—Ed. L. & M. P. J.

"We now offer some speculations on the chemistry of the changes which occur in the sulphuration of a print to the yellow stage.

"In the first place, there appears to be good reason to believe that the presence of organic matter does not modify the effect to the extent that is generally supposed. Take for instance, a collodion negative that has been fixed in the hypo, or cyanide, and immerse it in hydro-sulphate toning bath. It may be toned in the same way as a positive print, and in time the strongest blacks will become reduced to a yellow substance. Now, there is a strong reason for believing that the pyroxyline film undergoes no change during the process; while the blacks of the negative, if rubbed by the finger in their dry state, appear to be just as much metallic silver as if the glass had been electro-plated with that metal. And again, if we print in the usual way on a piece of unsized paper (blotting-paper,) the very same yellow toning may be produced, and quite as easily as if the paper had been sized with organic matter.

"If, then, we omit the consideration of any effect which organic matter may have on the material of the image, we shall simplify the problem considerably. But at the same time we must not be misunderstood. There *may* be a combination of organic matter with the material of the image, and this *may* affect, to some extent, the mode of action of the sulphur, and the nature of the ultimate product. We omit this consideration at first, in order to ascertain how far a plausible hypothesis can be constructed when the problem is reduced to its simplest form.

"Let us then suppose the question reduced to this:—Why does the black sulphide of silver become yellow by excess of sulphuration?

"Now, it is not probable that silver, during the process of sulphuration, passes through various stages of sulphuration, until it eventually reaches the form of yellow sulphide? May there not be a black sulphide, Ag, S, and a yellow sulphide, Ag, S 2? Sulphur is known to combine with many of the metals in various proportions. We have the ter-sulphide and the penta-sulphide of antimony; the proto-sulphide, the sesqui-sulphide, and the bi-sulphide of tin; the bi-sulphide, the ter-sulphide, and the penta-sulphide of arsenic; several sulphides of barium and iron; a sulphide, bi-sulphide, and penta-sulphide of calcium; and so on;—so that there is no 'a priori' improbability that there should be more than one sulphide of silver. If, then we can show that the black and yellow sulphides of silver are *not* isomeric, but that the former is an unstable proto-sulphide, and the latter a stable per-sulphide, we shall have done much towards clearing up the mystery of fading of sulphurated prints.

"In a letter just received from Dr. Alfred Swaine Taylor, he observes,—'I think lead and silver have higher degrees of sulphuration than those commonly assigned. All the per-sulphides give an orange red precipitate with a salt of lead, and it is not improbable that this is a Pb, S 2, or Pb, S 3, according to circumstances.

"Or, may it be, that the yellow salt is a double sulphur salt, formed by the union of the black sulphide of silver, which is a sulphur base, with sulphuretted hydrogen, which is a sulphur acid.

"But there is another phenomenon connected with the fading of positives. They turn yellow in consequence of oxidation, as well as of sulphuration. How is this? The explanation is easy if we adopt the notion of two distinct sulphides of silver, a black and a yellow, which are not isomeric. An oxidizing agent would, by removing one atom of silver from the proto-sulphide Ag. S, convert it into oxide of silver, Ag. O, and the yellow sulphide Ag. S 2. The oxide of silver would then form a salt, either with the oxidizer employed, or with the acid (acetic or latic), formed by the decomposition of the size or paste, and would either be removed or remain in the paper as a white insoluble substance, while the yellow sulphide would remain.

"Another view of the cause of fading by oxidation would be, that the sulphide of silver becomes converted into sulphate of, and free sulphur. Professor Schönbein has shown that most of the metallic sulphides may be easily oxidized into sulphates. Sulphate of silver is a white salt, soluble in boiling water, and in ammonia at ordinary temperatures. The sulphate of silver might therefore be easily removed from a sulphurated collodion negative, and by digesting the remainder in nitric acid, and treating it with a chloride, the presence of silver in the yellow portions could be detected. The chemist, who has the means of performing this piece of analysis, may be rewarded by being able to throw much light on the mystery of the fading of positive prints.

"Prints are generally found to fade more rapidly in the dark than in the light, just as substances are oxidized more readily in the dark. A fire, for instance, is sometimes put out by sunshine, and always burns best at night. At the same time damp and darkness generally go together, and damp would favor oxidation, and also sulphuration, should any sulphur remain in the paper.

"Paper frequently contains sulphur, either in the form of sulphate of lime, or of free sulphuric acid, or of sulphide of sodium introduced as blue coloring matter. The sizing is sometimes tainted with incipient putrefaction, and nothing can then stop the further progress of decay; however dry the paper may be kept the size will then continue to putrify until of course both the paper and the print are destroyed.

"Should a *minute* portion of sulphur remain in the paper, in consequence of insufficient washing, it is evident that a print containing a *large* quantity of silver would be entirely destroyed by it; and therefore a developed print would have a decided advantage over a sun-print in the power of resisting the attacks of the foe. It does not appear that so much is to be feared from the sulphur existing in the atmosphere, as from that which may be left in the print. Mr. Hardwich has shown that a Daguerreotype plate may be greatly tarnished by an amount of sulphuretted hydrogen which did no injury to positive prints exposed along with it. The necessity of copious and thorough washing after a sulphur toning bath is evident; and whatever may be the nature of the chemical changes which takes place, *that* is the practical conclusion with which we are most concerned. If we tone with sulphur we must remove all traces of the toning bath, or the print will infallibly become yellow, for the process of toning is always continued to the yellow stage when sulphur is present.

"And now comes the important question, is it *possible* to remove all traces of the sulphur toning liquid from the paper by mere washing? And if not, what chance have any prints produced by the ordinary methods of lasting more than a year or two? These are questions which every conscientious photographer must at times ask himself, and endeavor seriously to solve. If, year after year, the great bulk of the prints which are produced by the common methods, and toned in a hypo bath containing chloride of gold, are to go on fading, how long can such a process last? Is it not utter folly to rest content with it, and permit all enquiry with respect to it to cease? Would it not be much more honorable, and in the long run much better policy, to admit what cannot possibly be denied, and endeavor at once to remedy the evil? There is a tendency just now among professional photographers to allow the question of the fading of positives to drop, while the old process is permitted to continue in full operation. But this is miserably short-sighted policy, as the event will certainly prove. If photography is not to decline rapidly in public estimation, the printing process must be placed on a much sounder basis than it is at present. There must be some guarantee for the public that the paper does not contain within its pores a substance which will ultimately destroy the photograph; and the longer the present bad process continues in operation the more difficulty will there be in inducing purchasers of photographs to accept and believe in such a guarantee, when it shall become possible to offer it.

"It may be useful to consider how far washing the print in hot water may be a good plan. It has been recommended by Mr. Hardwich, but in practice we do not find it to answer. Should any of the tounig liquid remain in the paper when the print is placed in hot water, the heat greatly accelerates its action, and the beauty of the picture is destroyed *at once.* On the other hand, should the toning liquid have been removed by washing in cold water, there will be no use in further treatment. Until it is proved that the destructive agent is more soluble in hot than in cold water, and that it cannot be entirely removed by cold water, the utility of hot water treatment must remain an open question. It appears certain that that portion of the shadows which is formed by silver alone is, to a certain extent, soluble in hot water, which therefore injures the vigor of the print."

From the Liverpool Photographic Journal.

WAXED PAPER PROCESS.

BY REV. MR. LAW.

[Read before the Birmingham Photographic Society Aug. 25, 1857.]

Mr. Law in commencing his account of the *Waxed Paper Process* said:—It has often occurred to me, that if some practised photographer who has gone through any particular process, and met with all its failures and subsequent success, would give the details of his failures, tracing each resolutely to its sources, and point out thereby the mode of prevention or remedy, he would at once produce a paper both highly instructive and entertaining.

The grand secret, Mr. Law continued, of success in photographic operations is the disposition and ability to trace failures to their causes; and I candidly confess, although the confession may savor of uncharitableness, that when a photographer, either an amateur or a professional, conceals his failures beneath the assurance of uniform success, I think, either his experience must be very scanty, or his judgment faulty; his standard of excellence must be too low, or his aspirations after perfection have not emerged from the incubus of defective mental training. . . . . .

That the waxed paper process is capable of great intrinsic excellence of a highly artistic standard, no one who has ever examined an exhibition of photographs will deny, but whether the process is superior to collodion, or whether the albumen or the calotype excel both, I shall not not enquire. I have practised all, and it is exceedingly difficult to raise a standard of comparison.

Let us now take, *seriatim*, the seven distinct operations into which the waxed paper process naturally divides itself.

I.—THE CHOICE OF THE PAPER.

Good paper, as all photographers are fully aware, is a difficult thing to obtain. Some years since I found none equal to Canson's negative paper, but from some cause or other this paper is now nearly worthless for photographic purposes. A uniformly fine and even texture, and perfect permeability to the melted wax are absolutely necessary to ensure success. English papers, although possessing the former requisite, are all sized with gelatine, which has a tendency to diminish their sensibility to light and to render their saturation with the wax extremely difficult. Good French paper, carefully prepared, will yield equally delicate results, besides being much more sensitive. English papers should be manipulated unwaxed, and by the time they are finished they will be found readily permeable to the wax. The advantages which *English* papers possess over the French are, First, greater fineness of texture. Second, the length of time they may be left in the developing solution without discoloration. Third, when treated as above they will bear a much longer exposure in the camera without solarization. The gelatinous matter in their composition has, however, a retarding influence upon their photographic action, and, therefore, as compared with French papers the sensibility is as hree to two; thus, while English papers will require fifteen minutes, the French take only ten minutes. Upon the whole, I prefer the French paper for the waxed paper process.

"Papier Rive" I find very certain and regular in its action and tolerably rapid. "Papier Saxe" is rather thick and about one-fifth slower in its action; it is most suitable for architectural subjects. "Marion's papers" have yielded me most excellent results. They are even in texture and more sensitive than any other I have yet used. The No. 16 gives very perfect detail, but is rather apt to become granulated by over-exposure.

The paper, however, which has proved in my hands the most successful is "Marion's New Extra Sensitive Negative Paper," upon which I have taken the views and also the portraits I now exhibit—portraits taken in forty seconds, and remarkable for their softness and delicacy.

II.—WAXING THE PAPER.

The kind of wax I prefer for my own use is pure virgin bees' wax, and to prepare this I obtain the palest portion of the comb before the honey is strained off, and after carefully separating all extraneous matters, I throw the comb into a large quantity of boiling water. When the water is cold I take off the solid wax from the top, put it into a basin, and thoroughly melt it, taking care that it does not boil; the sediment will thus sink to the bottom, and when the mass is cool, it may be scraped off the bottom of the cake.

The principal object to be obtained is thoroughly to saturate the paper with wax, and at the same time to take great care that the temperature shall never exceed at most about 220° Fahrenheit, because if the wax *boils*, a change or decomposition takes place, which renders it almost useless for our purpose. I always use a box, and after making the heater red hot, I allow it to cool down from a red heat into an invisible (if I may so term it) or black heat; I mean when the last trace of red has vanished. In this state I put it in the box of iron; in a minute or two I apply a piece of wax to the iron, if it bubbles, the iron is too hot, but if it runs down in streams, it is in a fit state for use. It is very important to have the iron perfectly smooth and clean. After many trials, I have found that the best way to clean the iron is by rubbing a piece of wax over the flat part, and then immediately rubbing bright with a handful of thin paper. I then move the iron over the paper to be waxed, and follow it up with a piece of wax until the surface is thoroughly covered. When one paper is waxed another is laid upon it, and the same operation is gone through, one after the other, until a compact block or mass is formed.

The sheets may be separated, when required, by holding the block to the fire, taking care not to let them scorch. I then place each sheet between two thicknesses of bibulous paper, and on passing the iron over them the superfluous wax is absorbed. On examining the sheets they should present a perfectly even and homogenous appearance, when held either against, or diagonally with the light; there should be no patches of extra or lesser transparency. Should such be the case with any of the sheets, they should be at once rejected. This brings us to the next operation.

III.—IODIZING THE PAPER.

To one pint of distilled water (twenty ounces) I add 225 grains of iodide of potassium, $112\frac{1}{2}$ grains of bromide of potassium, a large teaspoonful of pure honey, and as much free iodine as will give the liquid a deep sherry tint. Having filtered this, I pour sufficient into a flat dish and proceed to immerse the papers in the following manner:—Taking a sheet by the opposite corners, I bend it thus, and lower it on to the liquid quickly. I then, by means of a pair of forceps, take up one corner and raise it, in order to see if any air bubbles are present: should there be any I carefully remove them with a glass rod. I then lower the sheet on the bath, and still holding the corner by the forceps, I pass a glass rod, bent in a triangular form, quickly over the back of the paper; by this means the paper is evenly immersed, and bubbles are avoided. Proceed in the same manner till the dish is full or nearly so. I allow them to soak some time and pin them up to dry.

The papers, when dry, should present an even, uniform, brown, or purple color. The sheets so prepared will keep any length of time if secluded from the air. When required, they are all ready to be made sensitive.

IV.—THE SENSITIVE BATH.

The strength of the nitrate bath varies with different operators. My own formula is thirty grains of nitrate of silver; thirty minims of glacial acetic acid; one ounce of distilled water. I always endeavor to keep up the strength of my nitrate bath, and after exciting about half-a-dozen sheets I add about thirty-five grains of nitrate of silver, and thirty-five minims of glacial acetic acid to each eight ounces of solution. The acid I use is true glacial acetic, which solidifies at fifty degrees Fahrenheit. Weak nitrate solutions, as a rule, will not answer the purpose, as they soon become exhausted, and therefore cannot be relied on.

In rendering the paper sensitive I float and immerse it in the same way as recommended for iodizing, only exciting one sheet at a time; allow it to remain in the bath until all the brown color has disappeared, when it may be transferred to a dish of distilled water, and subsequently to a second, if the paper is required to be kept some time. Wax being a repellant of water, it is necessary to blot off all the moisture previous to hanging up to dry, otherwise stains are very apt to make their appearance.

I may here observe that Dr. Keith has established the fact, that by increasing (within certain limits), the strength of the iodizing solution, and therefore the amount of iodide of silver in the paper, it is possible almost to rival the rapidity of collodion. In these cases the sensitive paper is used immediately after the formation of the iodide of silver, and applied to a clean plate of glass when taken out of the silver bath. No washing is required.

With regard to the sensitive bath, my advice is never to prepare a smaller quantity of the solution than sixteen ounces, and never attempt to excite more than one sheet at a time, and be careful to get rid of *bubbles*, the existence of which would necessarily occasion unequal action of the nitrate solution upon the iodized paper, and stains in the developed negative. Wash for about five minutes in two separate baths of distilled water after removing the papers from the exciting bath, each containing about a pint, if they are to be kept over twenty-four hours otherwise one washing for the same time will suffice.

V.—EXPOSURE IN THE CAMERA.

I have always obtained my best negatives with paper freshly prepared, *i.e.* exposed within twenty-four hours after being made sensitive. Exposure to atmospheric influence rapidly deteriorates the sensitive paper. Where it is impossible to prepare the paper and expose within the time I have just indicated, immediately after blotting off on *thick* bibulous paper the remains of the washing bath, place each piece of sensitive paper between two fresh sheets of clean blotting paper (the thinnest kind answers best for this) and subject it to pressure in a common positive printing press.

VI. & VII.—THE DEVELOPMENT AND FIXATION.

For developing, prepare a saturated solution of gallic acid in distilled water, and add about a drachm of *freshly prepared aceto-nitrate with twice the quantity of glacial acetic acid, used for exciting solution*, to each six ounces of the gallic acid solution, *i.e.*, one ounce distilled water, thirty grains nitrate of silver, seventy minims glacial acetic acid. Take care to develop sufficiently, so as to get the black deposits on the high lights, or the durability of the finished negative is problematical, and it will be impossible to print from it by *development*, than which I apprehend no safer criterion of the quality of a negative can be afforded. On this subject I have found Mr. Sutton's remarks invaluable. Wash, and fix the negative in the usual way.

In conclusion, I should like just to mention an improvement I have made in the application of collodion to paper.

I take a clean plate of glass, and having cut a piece of thin paper one-eighth of an inch smaller than the glass each way, I float it on distilled water until it lies perfectly flat, also taking care that only one side is wet. I then draw it gently along the surface of the glass, taking care not to leave any air-bubbles underneath, (with a little practice this is easily managed), then with a piece of bibulous paper absorb all the moisture. I then coat the plate with collodion in the usual way. The film adheres to the uncovered portions of the plate, and thus forms at once an adherent surface, and a perfect protection to the paper from any staining on the back, &c.

The remaining operations were conducted in the ordinary manner. When the picture is dry and varnished, it may be removed from the glass by passing a penknife round the edge of the plate. The paper will then leave the glass and give you a perfectly portable negative. By this simple contrivance I flatter myself that all difficulty in the way of working collodion upon paper is obviated.

A vote of thanks was given to Mr. Law for his paper and for the presentation of some admirable specimens obtained by his process.

[Mr. Law's remarks upon the utility of pointing out the *causes of failure* which attend the various processes are very acceptable. We are acquainted with operators who "never find any difficulty," and who, consequently, never produce, except by chance, or for a short time, pictures of excellence. That the waxed paper process is capable of yielding "highly artistic results we admit; and we have a particular desire to see it succeed, having been one of the first to introduce it into this country direct from M. Le Gray, who kindly showed us his manner of waxing the paper, at a time that its capabilities were unknown in England. We at once began to use it even for portraiture; but we soon found that in this respect it was inferior to Mr. Tanner's wet process in point of sensibility and in the production of half-tint. We have been all along hoping that in these latter respects it would improve, but we cannot say that our anticipations have been "realized." Its great merit is its power of keeping clean for some hours; but if for the sake of sensitiveness it is to be used unwashed and moist, one had better use Tanner's process as being more simple, and, as we believe, more sensitive. Still we desire to see the waxed paper process practised and improved. We have seen English paper waxed and prepared exactly in the manner of the French paper, and with an equally good result; there is therefore nothing in the nature of the English paper to exclude it from trial. The difficulty is to get the right sort of paper, and until this difficulty is got rid of the paper processes will remain unduly depreciated. Good and pure bleached wax can now be obtained in London, and there seems to be no reason to take the trouble of melting the comb only to obtain a product which is tinted yellow, and only bleached by repeated exposure in the copying frame. It may not be universally known that the ordinary cakes of white wax were *never* pure. It has been the uniform practice of "the trade" to "temper" the pure material with cheaper fatty matters! Is it likely that this tempering or *tampering*, would have been adopted if fatty matters had been dearer than pure wax? The method of removing the whole of the superfluous wax by bibulous paper is extravagant, and unless a good reason can be given for this method, the Marion's paper itself should be made to remove the excess; these sheets thus partly waxed can then be completely waxed as the first were, and so on. It will be observed that Mr. Law uses bromide of potassium. We wish this point could be settled. The bromide has been deposed by some operators of repute, and, if wrongfully through ignorance, reparation should be made. There are also discrepancies as to the effect of keeping photographic surfaces. In the Daguerreotype, M. Claudet finds that the plates are most sensitive after some hours of keeping; other Daguerreotypists say they do not find this to be the case. Mr. Law says he has obtained his best results within twenty-four hours after the preparation of the paper. M. Martens, of Paris, tells us that he thinks almost all photographic surfaces are improved by keeping some hours. Now, what is the limit? This should be ascertained for each process. We should then have something more definite than an assertion that a good picture was obtained after several days' or weeks' keeping of the plate or paper. Mr. Law's statement is a practical one, "within twenty-four hours." Mr. Sutton gets credit for recommending a full development of the negative. This was always a great point in the practice of the Talbotype process; for copying by development was one of the first aims of the early operators in paper photography. A French company, who purchased Mr. Talbot's license for France, set out with the idea that no other plan of copying could be so useful, and they produced specimens equal to any done since, either by M. Blanquart Evrard, Sir William Newton, or Mr. Sutton. In his patent, Mr. Talbot stated that copies might be made by development; and the writer of this made many experiments at Mr. Talbot's request, with a view of superseding the ordinary chloride paper. Some "tolerably good" results were obtained in 1850–51 by using chloride of silver and sulphate of iron as a developer; but the prints on albuminized paper were superior, and so all further attempts were suspended. We shall be delighted to see a good development process for positives; and whatever photographic merit M. Blanquart Evrard and Mr. Sutton possess is due to their persevering exertions in this direction. Let them not however, flatter themselves that they have solved the problem. Their results are inferior to albuminized positives, and not equal in permanency to engraving, or even to common writing ink. We make these statements thus distinctly because an endeavor is being made to raise, by constant clamour, an impression that *great* improvements and discoveries have been made in this direction.—Ed. L. & M. P. J.]

From the Jour. of the Phot. Soc.

ON THE PREPARATION OF PYROXYLINE FOR COLLODION.*

BY T. F. HARDWICH, ESQ.

The investigation on pyroxyline reported in my last paper, has since been continued with very encouraging results. The theory of the whole subject will soon, it is hoped, be established on a satisfactory basis. Variations of temperature, and of the actinic force, must always be a cause of uncertainty in photographic processes; but as far as the sensitive collodion film itself is concerned, the exact conditions of uniformity ought to be ascertainable by a sufficiently minute examination.

It may perhaps be as well to state, that I lay no exclusive claims to originality in these papers. My object has been to work out the subject practically, and in an independent manner, availing myself at the same time of any information, published or otherwise, which I have been able to obtain. The principal points on which I wish to lay stress are two in number, viz., the substition of linen for paper, as a more uniform material and the employment of a nitrosulphuric acid containing a larger quantity of diluted sulphuric acid than that given in the first of the two formulas recommended by Mr. Hadow. Linen is chosen in preference to flax, from its having undergone a favorable modification in the process of manufacture, and the formula for the nitrosulphuric acid is changed in consequence of the diluted oil of vitriol being found to assist in condensing the fibre, and producing a limpid and structureless collodion. If the plan now proposed be followed, double the usual quantity of pyroxyline may be introduced into the collodion without making it viscid, and the film will not readily slip from the glass, or allow the fixing solution to work underneath.

Many other advantages of employing such a collodion may be enumerated; the film being short and non-contractile is well fitted for the oxymel and dry collodion processes, and for the same reason allows a long exposure in the camera without drying up. The developing solution runs freely, and quite to the edge. Line engravings are copied with considerable definition, the image retaining much of its positive aspect by reflected light, and presenting an appearance altogether different from that given by a tenacious collodion made from cotton-wool.

On the other hand, it must be confessed that there are some defects. Unless the temperature of the nitro-sulphuric acid be kept within due bounds, the pyroxyline will produce a collodion which liberates iodine quickly, and gives (with a short focus lens of full aperture, and in a strong light) an image of excessive density and of less half-tone than usual. This will be seen likewise on iodizing with an alkaline iodide and keeping for a time. The collodion then becomes very brown, and can scarcely be used successfully for portraits. In a weak light it will fail to give the dark parts of the picture, unless by a prolonged exposure.

Although it does not invariably follow that collodion from linen pyroxyline gives a more dense negative image than that from cotton, yet commonly such is the case. Neglecting for the present, the consideration of particular causes which interfere with the proper development of the image on any collodion, and taking for granted the assertion often made, that the condition of the pyroxyline has much to do with the intensity, I proceed to detail some experiments performed with a view of elucidating this point. In conducting them I availed myself of a suggestion of my friend Mr. Pollock, and precipitated the plain collodion with distilled water, in order to test for the presence of a soluble bitter matter which he had discovered. On treating several different samples of collodion in the same way, I found a trace in all, even in that made from cotton; but in the intense collodion prepared from linen a much larger quantity. The same bitter substance may be detected in linen pyroxyline, which is in a fragmentary state from partial solation in the nitro-sulphuric acid. On taking the pieces out of the mixture, washing gently, and laying them on the tongue, the acid taste is succeeded by a strong bitter, like that of nitro-glucose, to which this body is probably closely analogous.

Since, therefore, the pyroxyline in these intense samples of linen collodion is not in a chemically pure state, but associated with minute qualities of a soluble substance, it seems reasonable to suppose that the development of the image may be affected thereby. There is, indeed, a peculiar creaminess, or 'bloom' as some would call it, upon the plate, such as certain kinds of organic matter, in conjunction with a strong light will produce.

The pyroxyline made from linen, at rather a high temperature, and with an excess of sulphuric acid, seems in other respects also to possess properties intermediate between those of the ordinary soluble cotton and nitro-glucose. In addition to the sparing solubility in water mentioned above and the strong bitter taste, I observe that, when first treated with the ether, it sinks down to a soft and sticky mass, not easily removable from the bottom of the vessel and often admitting of being kneaded in the fingers like a soft resin.

This probably explains why the film is so adherent to the glass. In Taupenot's process, for instance, I have found the use of a short collodion made from linen to be an almost certain remedy for blisters; it resists the dragging action of the albumen, and rarely separates, especially, when it has been kept a long time after iodizing with iodide of potassium or ammonium. I have also laid two samples of collodion, differently prepared, upon the same glass, covering both with albumen, and found that one blistered whilst the other did not. I think, therefore, that the explanation which refers this source of annoyance principally to a faulty state of a collodion is in the main correct, although other causes may be concerned in producing it.

Another point to which my attention has been lately drawn, is the variable rapidity with which different samples of plain collodion liberate iodine on adding the alcoholic solution of iodide of potassium. This question, like most other points in photography, is a complex one, as the state of the ether, the reaction of the collodion to litmus, and the length of time the plain collodion has been kept, must all be taken into account. There is, however, a peculiar condition of the pyroxyline itself, not hitherto noticed, in which although the traces of acid have been removed by washing in weak ammonia, and the plain collodion possesses a faintly alkaline reaction, yet a rapid coloration occurs on adding iodide of potassium. I have found the above state to be produced by leaving paper in nitro-sulphuric acid for a long time, say from twelve to twenty-four hours, and also by making linen pyroxyline at a very high temperature, and with an excess of the diluted sulphuric acid. To prove further that the action of sulphuric acid was one means of producing this state, sheets of blotting-paper were floated upon oil of vitriol mixed with half its bulk of water, for variable periods of time, and subsequently made into pyroxyline at a low temperature; the result was that the paper, simply floated upon the acid and removed immediately, produced a collodion which remained nearly colorless on iodizing; whilst that which had remained in contact with the oil of vitriol until a very strong contraction had taken place, liberated iodine so quickly that the fluid assumed a blood-red tint in less than one hour from the time of iodizing. In both cases care was taken to remove all traces of adhering acid, and to use ether free from the ozonized principle.

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* Continued from p. 342, vol. x., no, xi.

Having prepared a sufficient quantity of collodion in both of the states above-named, I was desirous of ascertaining, what effect would be produced by iodizing with a stable salt such as that of cadmium, and using the preparations whilst in a colorless condition. The difference was remarkable. The first produced good negatives, but the second, viz. that which possessed the property of displacing iodine from iodide of potassium, gave very feeble and foggy pictures. In preserving the plates by oxymel the same difference was seen; with the latter collodion the developing solution of pyrogallic acid discolored almost instantly on touching the film. I next tried them for the dry collodion process, but with no better result: the film in which the pyroxyline was in the modified condition before named at once discolored the gallo-nitrate, and a faint image only appeared. It was impossible, in fact to use the collodion in its then state for any process, although it had been made from the purest materials. The remedy which was adopted was simple: a second portion of the same collodion was iodized with a mixture of iodide of potassium and iodide of cadmium, and set aside for twenty-four hours. At the expiration of that time it had become brown, and gave good negatives both on oxymel and gelatine plates; the developing solution remaining clear to the last.

The practical inference to be drawn from these facts is, that if any samples of plain collodion, iodized with iodide of cadmium, should from the above cause fail to give a clear picture, it must be set aside for a week or two until a lemon-yellow tint is produced, or a little iodide of potassium or ammonium must be added, and some hours allowed for the full displacement of iodine to take place."

From the American Druggists' Circular.

THE SOLVENT PROPERTY OF GLYCERINE.

A. F. HASELDEN.

Extensively employed as glycerine is for many external purposes, the value of it as a solvent or menstruum is not, I believe, so generally and fully known, or so justly appreciated, as it deserves to be; and a few remarks, the result of personal practical observation and experiment, may not be altogether without interest to a portion of your readers, particularly those who are desirous of turning to the best account any suggestion likely to add to the comfort or relief of their suffering patients

The especial property which glycerine possesses of dissolving the disulphate of quinine would alone be sufficient to render it an object of interest, but it is equally powerful with many other substances. It readily dissolves the disulphate of quinine in the proportion of two grains to the fluid drachm, forming at first an opaque fluid, which in the course of a few hours becomes a clear bright solution, possessing the peculiar pale blue, superficial tint peculiar to the solutions of that substance, and this without the aid of heat or any acid. This solution is miscible with waters and tinctures in various proportions, and it appears a great advantage to possess a clear bright, elegant, and by no means disagreeable solution of the disulphate of quinine, without the addition of acid. Gallic acid, which requires one hundred parts of cold water for its solution, is soluble in rather less than twelve parts of glycerine, making a clear, straw-colored liquid, of a pleasant, sweetish, sub-acid taste, in this state offering a desirable mode of administering the gallic acid where pills might be objectionable, and a large quantity of fluid impracticable.

Tannic acid is also freely soluble in this substance, and as an external astringent application might prove preferable in many instances to an oily or greasy compound. In the treatment of hæmorrhoidal affections, it may possibly offer, as an application combined with opium or the salts of morphia, some advantage over the reigning preparation—unguentum gallæ compositum, it being more tenacious and at the same time lubricating, and when combined with the salts of morphia, in place of opium, it possesses the decided advantage of not staining the linen.

The hydrochlorate and acetate of morphia are readily soluble in glycerine, making a clear, limpid solution of a slightly yellow tinge, forming as it were, a kind of syrup, which might possibly prove in many ways useful in the hands of the profession.

Glycerine also dissolves the ferri et quinæ citras, in the proportion of five grains to the drachm, forming an olive-yellow-colored liquid peculiar to the solutions of that salt.

There are other substances which glycerine eminently possesses the property of dissolving in a larger proportion than any other known fluid, but sufficient has been said to introduce the subject to your readers.

From the N. Y. Daily Times.

THE EXHIBITIONS

Of the British and French Paintings in New York.

"Because thou art virtuous," cries the indignant Sir Toby, "shall there be no more cakes and ale?"

Because we have all been worried by a panic and crushed by a pressure, shall there be no more pictures in the world, and no more pleasure taken in them? On the contrary; if Art is what the lovers of Art declare it to be, and what we believe it, clearly there was never a time when its beneficent and renovating influences were more sharply needed than they now are; and of all the people in the world, we New Yorkers should be the warmest in our welcome of Urania and her glorious train. All the world we know is not of this mind. One of our Richmond contemporaries, for instance, fell into a great passion with the innocent Dr. Charles Mackay, for his insolence in crossing the Atlantic just at this moment to taunt us with his song of a "Good Time Coming." And we dare say that if the English and French artists who have ventured so many of their creations upon the treacherous sea for our delectation and instruction should come under the eye of the same ferocious censor, he would rate them soundly for their impertinence in asking us to walk out of our own dismal world of protested notes and insolvent banks, into an airy realm of prosperous imaginations. But as we do not really think that our foreign friends mean to insult us, we shall venture to speak of them as if they had done us a service.

We have no "school" of art, properly so called, in America. Our artists are the *disjectra membra* of various great European bodies; and no collection has ever given us a distinct conception of a great artistic family. The Dusseldorfers alone have been represented among us for several years, in a gallery which has not yet deserted us, though we have well nigh deserted it.

Although these artists belong by their intellectual pedigree rather to Holland than to Germany, and although to accept their works as types of German art in the age of Cornelius and Kaulbach and Overbeck, would be simply absurd, still they constitute one province of a great kingdom, and have a physiognomy of their own which, if it be not very noble or lovely, is at least, their own. It was only in the Dusseldorf Gallery that our untravelled artists could gather some positive notion of the meaning of the phrase a "School of Art," while the people in general were learning what to like in pictures, and why to like it. But both artists and people in general have now an ampler field before them, with the promise and the prospect of an indefinite expansion through all future time. An association of amateurs and of artists in England has undertaken to open and to keep open a channel of communication between the artistic production of the old world and the artistic appreciation of the new.

The time has come, that is, when pictures and statues are to enter like books, music, engravings, into the circulation of the world's life. Landseer, and Rosa Bonheur, Maclise and Couture, Stanfield and Gudin, are to follow where Tennyson and Browning, De Balzac and Lamartine, Dickens and Thackeray, Verdi and Meyerbeer have led. It is not easy to overrate the importance of such a revolution, in the æsthetic history of our people, but as it would be very easy to utter a great deal of extravagant nonsense thereanent, we shall not dwell upon any possible future just at this moment. Suffice it that the persons who have put their hands to the work are both able and determined to carry it through, and that we must accept their present performance simply as a proclamation, and not at all as a fulfillment of their project. They mean to make us acquainted with the leading schools of European art; to stimulate thereby at once our connoisseurs and our painters; to kindle in the popular mind a warmer love, and to illuminate the popular brain with a clearer knowledge of painting and of pictures.

To this most desirable end they have now taken the essential first step. They have gathered together as many good pictures as were disposable for their purpose in London and in Paris, and forming them into two groups, have set them before us—the British in the new rooms of the Academy of Design, the French in the old saloon of the Art Union. The fortune of Peace, we are sorry to say, has not been more favorable on this occasion to our English cousins than was the fortune of War in the Crimea The Manchester Exhibition and the private galleries interfered sadly on the other side with the designs of the association, and circumlocutory difficulties appear to have attended the array of their treasure upon this. Many of the best names in English Art are wholly unrepresented in the catalogue of the collection, while of the artists exhibiting, but few are fairly represented to the public whose acquaintance they are now to make. The rooms of the Academy are awkwardly arranged, and are just about as fit for the display of pictures as is the Academy of Music for the performance of operas. Moreover, the paintings are disposed after a strange, incoherent fashion, which dazzles the eyes as you enter, and leaves the brain bewildered when you go out. They are "hung" without respect to Chevreuil, or the laws of color—Pre-Raphaelite intensities "killing" naturalist composure, and flagrant oils literally burning the life out of quiet aquarelles.

The only section of the English School, too, which is prominently put forward in a way to convey something like an adequate idea of its qualities, is the fantastic little knot of the pensive Pre-Raphaelites, and even of these we have not an absolutely satisfactory deputation. Neither Millais nor Rossetti are here, nor more than five or six of the faithful twenty-two, who held their "chapel" in Pimlico, in the days of June. Still we have quite Pre-Raphaelites enough among us, and if we cannot measure their highest aspirations in Holman Hunt's "Light of the World," or Madox Brown's "King Lear," we can at least touch their lowest deep in the "Mother's Grave," the "Fair Rosamond," and "Clerk Saunders."

Possibly a better thing could not have been done, both for the interests of British Art and for the Pre-Raphaelites themselves, than to give them the unluckily conspicuous place which they occupy in the present exhibition. For if anything can make the clever but crotchety adepts of this Eleusinian corporation understand the enormity of the absurdities on which they are wasting their talents, their utter failure to touch the sympathies of a people almost entirely new to the appeals of art, almost as ignorantly fresh, in fact, as were the Italians of the really Pre-Raphaelite period, ought to do so. The Pre-Raphaelites undertake to revive the traditions of the time "when art was still religion." They wish to make a penance of every picture, and of every penance at once a spiritual pleasure, and a spiritual profit. Because the painters who tried to paint before Massaccio and Perugino, and Ghirlandajo, Leonardo and Raphael succeeded in painting, naturally devoted their energies to the details which they could master, rather than to the broad effects of which they had not achieved the secret, and because these same painters put themselves to the infinite pains they were at, out of their passionate love for their art—therefore, argue the modern Pre-Raphaelites, no man can possibly cherish a passionate love of his art unless he abdicates all the facilities of subsequent experience, and all the principles subsequently discovered, and goes back to the tedious processes and the minute results of the "Ages of Faith." This logic is bad enough, but its practical results are still worse. Conceived by men of genius the Pre-Raphaelite theory has been adopted by weaker brethren, who are pertinaciously painting up all the weeds, dandelions, bits of straw, old glass, fence-rails and pokers that can be found in great Britain, in an orgasm of mingled tenderness for the "neglected truths of Nature," and contempt for sentimental fellows like Claude le Lorraine and Edwin Landseer. Some of these interesting fanatics are further afflicted with religious and poetic tendencies which they indulge in the representation of the most incredible mediœval anatomy, and the most incomprehensible antique symbolism. In a word those of them who have nothing to say keep repeating the letters of the alphabet in an oraclular manner, while those of them who have something to say, insist upon saying that something in the Norman-French of the Plantagenets, instead of the improved English of her Most Gracious Majesty Victoria.

This is the sum of Pre-Raphaelitism as a speciality. For the mere fidelity in the study of nature, of which they speak as it were their monopoly, belongs to a dozen other sections of of the World of Art as truly as to themselves. Without going back to Mieris, and Metzu and Terburg, who would be but names to most of our readers, we have only to refer to the French Exhibition in Broadway for fifty examples of truth of detail, not to be surpassed by the indefatigable Hunt or the incoherent Millais, and not to be equalled by most of their followers.

It is on the strength of this truth of detail alone that the Pre-Raphaelites can claim as their own Mr. Windus' capital of "Middlemass' Meeting his Parents," which (No. 165) is one of most thoughtful of the paintings in the English Exhibition. For Mr. Windus' picture is positively painted with so little "earnestness" that he has neglected to deprive Middlemass of his midriff, and has pandered to the popular eye by obeying the laws of perspective. That in doing these things he has outraged the sanctities of the Pre-Raphaelite faith any man can see at a glance by turning to "Fair Rosamond" under her "peached bower," or to the mildewed boy who lies upon his "Mother's Grave," a miracle of misery and of white mushrooms, while a little lamb skips along, a neat pathetic symbol of orphanage, through the air, *or rather through the space that should be air*, and at some considerable distance above the level of the pea-green turf. How much real power has been thrown away upon the puerile cant of this imaginary "new school," we have evidence enough in the *King Lear* of Madox Brown, and in the *Light of the World* of Holman Hunt. In the latter of these pictures one knows not which most to admire, the splendor of the tones, which is not unworthy of Decamps, the elaborate elegance of the execution, which Meissonier has hardly surpassed, or the delicacy and tenderness of the sentiment, which would have moved the heart of Albert Durer, and which attains what Ary Scheffer has all his life been trying, and in vain, to comprehend. This is one of the few Pre-Raphaelite pictures in which the artist and his "elevated motives" do not immediately obtrude themselves between the spectator and the canvas; it is, of course, a piece of mere mystical symbolism, but it has all the interest of true power. So, too, has the "King Lear" of Madox Brown, although the preposterous tricks of the school are more offensively prominent in this picture. The Cordelia is studied not after Shakespeare, but after the "nature" of the ancient Britons, and she is consequently a slightly coarse and repulsively vehement person, while *Lear* is a mere huddle of white flakes. The perspective, too, is atrociously bad, and the lights throughout the picture dismally theatrical. But there is a positive wealth of feeling and of fancy in the countenances of the group brought out of the tragedy to symbolize the story.

When we quit the Pre-Raphaelite conventicle for the Catholic cathedral of English art we began to lose our temper. For, knowing as we well know how rich the English ateliers and gaileries are, we own ourselves provoked into an unconventional mood of mind by inadequacy of the contributions sent to us, and by the ignorance or carelessness which has suffered what we have to be so unworthily set before us.

The broad lights of the Hall are thrown upon a crude and *criard* composition of Maclise's and an oak which Mr. Anthony must have found in the forrests of Cockaigne. An excellent picture by Lucy, "The parting of Lord and Lady William Russell," (105) is vexatiously hung opposite to a frantic and cadaverous "disfigurement" of "Romeo and Juliet," the false senti ment and odious coloring of which almost incapacitate one for properly appreciating the gravity, simplicity, strength and unfeigned pathos of the other composition. As a fine specimen of a class of work, on which our American artists have not yet adventured with much success, this painting of Lucy's nevertheless deserves particular attention and study. There is decided merit; too, in a large picture by G. H. Thomas, of Garibaldi at Rome, (151.) The *ensemble* of the battle scene recalls the vivid canvases of H. Vernet, and especially in the group about the General there is a rare warmth of tone and truth of sentiment, as well as an unaffected fidelity of "local coloring." A few small aquarelles by Turner will reward the attention they cannot fail to receive, provided the anxious spectator does not turn away too suddenly, in his disgust at finding them so little like his anticipations of the Turneresque turmoil and whirl of colors. He must remember that he has seen Turner only through the glasses of Ruskin, and looking at him for himself he may learn a thing or two in regard to the critic as well as the artist.

No. 176, a Coast Scene, is particularly fine—the roll and movement, as well as the light and hue of the waves, and the aerial perspective, write the master's name as visibly on those few inches of paper as it could be impressed upon the wall which Tintoretto covered with his Paradise. Mr. J. H. D'Egville, too, contributes some lovely views of Venice, full of feeling, and handled with infinite taste and grace. Then there are some lady-like imitations of the lady-like Uwins, by Mr. Corbould, altogether worthy to be commended to the makers of Annuals, and a number of clever specimens of that skill in zoology and in horticulture which is not uncommon among the English artists. There are peaches and oranges fit to be looked at, while real peaches and oranges are eaten; there are ducks and hens of much virtue, and various dogs, one of whom vindicates the sagacity of his race by looking at the preternatural legs of "Clerk Saunders," just over the way, with a misty expression, compounded of sorrow and of wrath.

There is a fine aquarelle of J. D. Harding, (91,) which, although "kilt entirely" by being badly hung, is well worth an attempt to do it justice; and there is a head entitled "Cinderella in for coal-carrying days," which, if it was not sent to us as a quiz for the purpose of "planting" the Yankees, is certainly the most sublimely absurd device ever invented by man. In short there are objects enough of interest or of diversion exhibited at the English Rooms to occupy severals visits very pleasantly and profitably. But our reader must never forget that we should render ourselves liable to an indictment for libel if we spoke of this exhibition as an exposition of the "English school,' and that we do not pretend for a moment to institute any comparison between it and the French Exhibition at the Art Union rooms, which is really a very fair presentation of the most successful and brilliant school of modern art, and which everybody ought to endeavor to see at least twice a week until the first of December, at which time it, with the English exhibition, will positively be taken back to Europe.

While deferring for the moment the particular notice which this admirable Gallery so richly deserves, we cannot forbear to say that the most ardent amateur will surely forget in five minutes at the Art-Union Rooms all the vexations and disappointments which he can possibly have experienced at the Academy. The one Meissonnier the one Gudin, Rosa Bonheur's three "stots," and any one of the five Freres there exhibited would make of themselves a Gallery and beget a *furore* among the connoisseurs.

From the Liverpool Photographic Journal.

ON PHOTO-LITHOGRAPHY,

And an alleged New Process for Transferring the Daguerrean Image to Paper.

A contemporary commences his "leader" with an announcement of "two important photographic processes." The first being M. Poitevins's process of photo-lithography; the other being erroneously described as "entirely new." That the first process is "important," there can be no doubt in the minds of those who have seen the specimens which we had the honor of placing in Professor Frankland's hands for exhibition at one of his lectures delivered at the Royal Institution, in the early part of the summer. Our contemporary is so far away from the great centres of photography, that he may be excused for having seen only one specimen, "which was *tolerably* good." We have in our possession, and have exhibited a dozen specimens, containing among them the one which is so much eulogised by the French committee, "that which represents some details of the Cathedral at Rheims, and which has been obtained from a fine negative of M. Bisson." We commend this picture to the notice of the Architectural Photographic Association. With such a result before them, they may perhaps pause before they commit themselves to the patronage of any development process hitherto *published* and *tested by time*, however "infallible" it may be declared to be. We are at a loss to understand why these fine photo-lithographs have not been more generally introduced into this country. Is it possible that we have amongst us those who do not wish to see Herr Pretsch's process rivalled, and who consequently do not care to see or hear spoken of, specimens which if all that M. Poievin says of them be true, will, before long, *go far* to supersede every other means of rendering the negative? These specimens might have been seen at the Manchester Exhibition, if the director of the Photographic department had used ordinary diligence in asking for specimens from *those who were likely to possess such.* The view of Rheims is considered superior to any *untouched* result obtained by any other process in which printer's ink is used. We have seen the images upon the stone, and during the process of copying in the light, and it seems to us that the whole plan is superior to the engraving processes for a majority of purposes, both as regards simplicity and facility of execution. We also think that for many purposes it must be more economical. The chromium salt mixed with albumen, applied to the stone, is inexpensive, and the treatment after exposure to the light and before the application of the inking roller, is marvellously simple. M. Edmond Becquerel, who is fully acquainted with the details of M. Poitevin's process assured us that we should be surprised at the simplicity of the whole affair, and it was only to give M. Poitevin every chance to establish himself before competitors who might, from their commercial position, have the means of outstripping the inventor, that he abstained from communicating fully what he knew upon the subject. We respect this feeling, in this case, though as a rule, we are not inclined to be very tender towards "secret mongers" in any art or profession. What is wanting in photo-lithography and in photo-galvanography, is that delicate gradation of tint which we obtain in positives, made upon chloride of silver paper, by the *direct* action of the light. No development process that we have ever seen, and we take great interest in inquiring into this matter, gives that gradation of tint and transparancy in the shadow which we find in positives, made upon albuminized paper; and if the balance is to be struck from a consideration of permanency alone, then we think photolithography will bear away the palm.

For *extreme* delicacy and permanency nothing has surpassed Fizeau's Daguerreotype etchings.

And this reminds us that we have to remark upon the new process for transferring the Daguerreotype image to paper, which essentially is *not* new.

Mr. Belfield Lefevre, who, it is just to say, writes with "much diffidence," directs that you shall,

1st.—Dissolve one part of gelatine and one part of golden syrup [the best molasses] in ten part of boiling water, and pour out the hot solution in a shallow pan.

2nd—Float for a few minutes on the hot solution a sheet of Hollingsworth's thin negative paper, previously well dried.

3rd.—Draw off the paper, holding it vertically at a short distance from the fire until the super-abundant liquid has ceased to drain off.

4th.—Lay it out horizontally on a cold slab until the gelatine had firmly set.

5th—Meanwhile take the image to be transferred fresh from the mercury box, and having washed it, first in the solution of hyposulphite, and then in water, put it on end to drain until the formation of the horizontal water-line marks that the liquid on the surface is reduced to a mere film.

6th.—Lay the gelatine paper on the image, pressing it down firmly and evenly with a soft cloth until it is brought at every point in perfect contact with the surface of the metal.

7th.—After a few minutes, peel off the paper. Some caution will be required, as it will be found to adhere rather firmly.

If the proof has been well selected; and the manipulation is successful, every particle of reduced silver will be found transferred to the surface of the gelatine, and a faint vestige of the original image will alone be traced on the black and polished surface of the silver.

On examining the transferred image by reflected light, it will appear as a faint and somewhat shadowy transcript of the original drawing, in which a careful inspection, in a favorable light, will detect many details re-produced with great sharpness and delicacy. By transmitted light, however, the semi-transparent nature of metallic films, of extreme tenuity, will be found painfully evident. It is indeed a faint negative, but it differs from those obtained by ordinary processes, in two most important particulars. In the first place, its lights are perfectly and absolutely pure; and in the second, its half tints, however faint, are represented by a metallic equivalent really and substantially existing upon the surface of the gelatine, and which therefore, may become the basis of chemical action, although too minute to be detected by the most careful inspection. The color of the metallic film varies greatly, generally approaching to a reddish brown where it is most dense. This clearly points out a fact for which we should hardly have been prepared, viz, that the high lights in Daguerre's image are in reality formed of two distinct layers, the upper stratum being blanched by the action of the mercury, and probably amalgamated with it, whilst the lower retains the reddish hue which reduced silver sometimes assumes The rosy tint which is observable in the high lights of the finest proofs, when seen obliquely, is thus explained. Considered as a basis of chemical action, the transferred image is a sheet of gelatine, on which particles of pure silver, or of silver amalgam, are more or less densely strewn. To increase the opacity of these particles, so as to render them less permeable to the rays of transmitted light, is a problem for the solution of which three methods are open. Firstly, to transform the metallic particles into some binary compound. Secondly, to substitute for them their chemical equivalents of platinum or gold: and Thirdly, to render them the centre of a catalytic action, which shall group around them fresh molecules of reduced silver. No great difficulty is to be apprehended in carrying out these suggestions.

The transferring of the Daguerrean image by means of gelatine, was accomplished many years since by a Mr Edwards, and published in, if we mistake not, the *Mechanics' Magazine*. We now have in our possession, a view of part of St. Martin's Chuch, Trafalgar-square, so transferred to *black paper*; and we long ago held a conversation with Mr. Edwards upon the subject; but the faintness of the image, and the non-success of the few experiments which were tried to strengthen it, caused the process to fall into oblivion. We recommended the use of this process as a means of studying the Daguerrean image, in one of the lectures we gave at the Royal Institution last year. So much for the novelty of this subject. And now, in behalf of the interests of photography, may we be allowed to ask Mr. Sutton to be less confident in his assertions respecting the "novelty," "utility," "permanency," &c., of the various processes that happen to come into his hands. One loses all reliance when one finds a writer frequently erring in this respect, and at last photography itself indirectly suffers. We have hitherto, generally allowed such statements to pass uncorrected; but, for the future, we shall make it our *mission* to tabulate, from time to time, the erroneous statements which we meet with in the course of our reading, especially as regards the past history of photography.

OUR ILLUSTRATIONS.

I.—VICTOR PIARD.

The portrait, we present in this number, of Mr. Piard is from a negative of his earliest attempt in the collodion process. Mr. Piard has been identified with the photographic art from its earliest introduction into this country, and as principal operator for Messrs. Anthony, Edwards & Co., and Anthony, Clark & Co, acquired a high reputation as a Daguerrean. He accompanied Mr. Anthony in 1842 to Washington, and assisted in taking the portraits of members of Congress, designed to compose the celebrated engraving of the "Senate Chamber," afterwards published by Messrs. Anthony, Clark & Co. He remained with the latter firm until it was dissolved, and then entered into partenership with Mr. A. Becker, with whom he remained several years. He afterwards essayed grocery business but his tastes for art overcoming his taste for tea, coffee, and sugar, he made a hasty retreat from behind the counter, to his more agreeable position before the nitrate bath in the establishment of Mr. C. D. Fredericks. In the Daguerreotype Mr. Piard had no superior. The daguerreotypes now to be seen in New York and taken by him in 1842 and '43 have never been surpassed, and we have no doubt, with the same diligence he then exercised, he will attain a first rank in the practice of the collodion process.

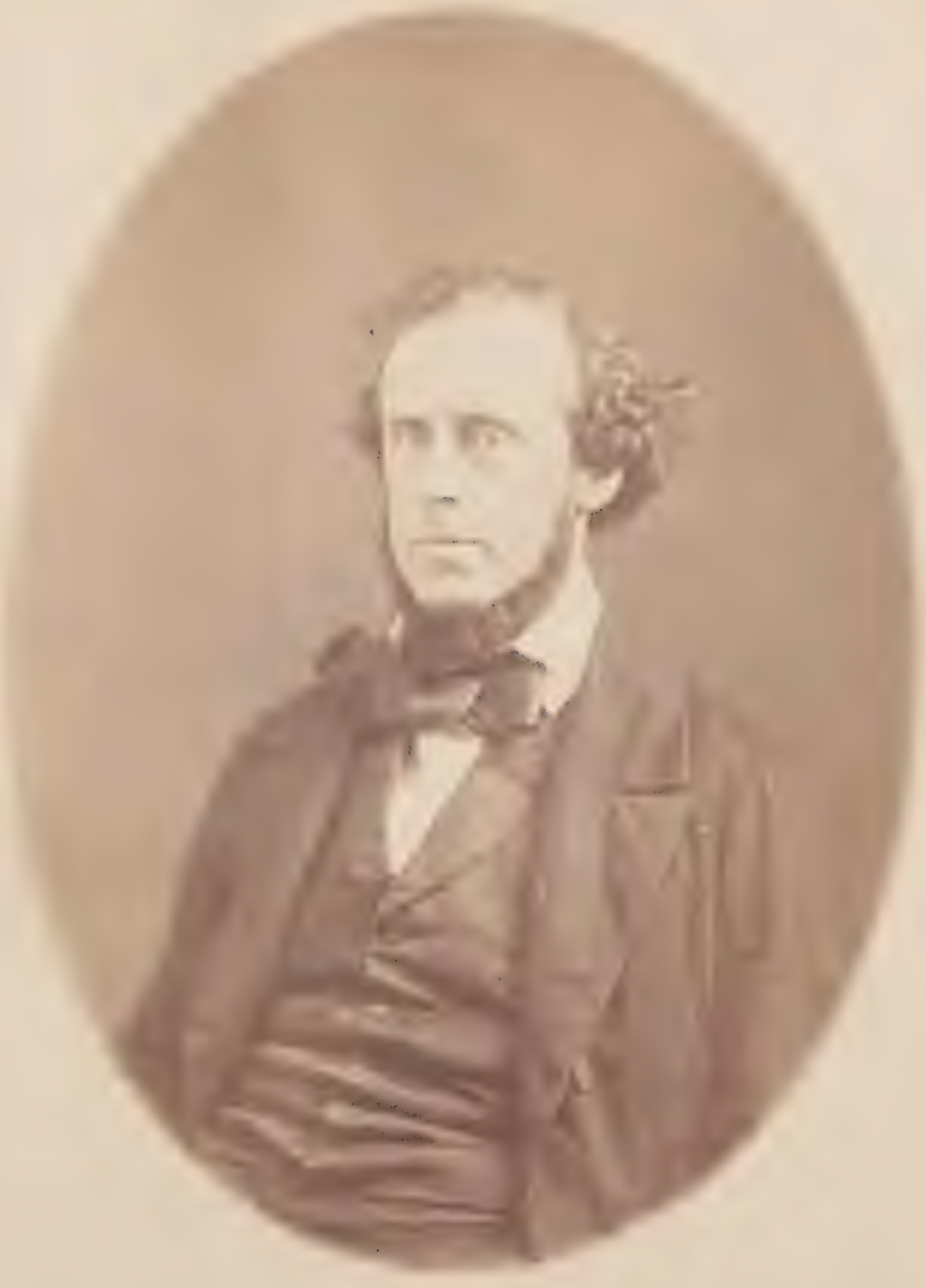
I.—REV. URIAH MARVINE.

Negative by C. Farrand.

Mr. Marvine has become famous as the officiate in the alleged marriage of Dr. Burdell to Mrs. Cunningham. We know of nothing particularly interesting in regard to the gentleman apart from this circumstance, which is already sufficiently known.

These pictures were printed by the same formulas as those for the six previous numbers. Hereafter we shall follow out the plan we first laid down to be observed in printing our illustrations, but which we have been prevented from carrying out for want of time. Hereafter we shall devote all our time to the Journal, and endeavor to give our readers greater variety in style, while we can assure them all perfect impressions.

Phosphate of Potassa.—Is prepared by neutralizing the super-phosphate of lime, obtained by the action of suphuric acid on burned bones, with carbonate of potassa. It is deliquescent, and has not been procured in regular crystals.



II.—REV. URIAH MARVINE.

Negative by C. Farrand.—H. H. Snelling, Print.

For the Photographic and Fine Art Journal.

CINCINNATI GALLERIES.

Dear Snelling,—I am now in the Queen city, Cincinnati, Ohio; and well she may be termed that. I have visited all the principal galleries of Cincinnati, and could say much concerning them; but I do not wish to consume too much of your valuable Journal. I find that many take it here, and as I always think brevity is the soul of wit, I will not dwell long upon the subject. I must first take a peep into Mr. Porter's gallery, corner of Vine and Fourth street; his place is very small, but the work is the principal thing. Mr. P. has taken the premium at the Fair for photographs painted life-size in oil, and deservedly so, for his pictures from the smallest miniatures to the life-size are gems. Mr. Wm. Miller paints his small water-colored pictures, and too much praise cannot be said for him. Mr Porter appears to do the leading business here in this branch of the art.

Mr. T. Faris whose gallery is corner of Walnut and Fourth street, is an old established gallery, and Mr. Hawkins, the veteran daguerreotypist of the whole West, is associated with Mr. F in the making of Heliographs, which are, in the way of pictures, the most beautiful of the kind that is possible to get up. Mr. Hawkins was the first in the West to make photographs, and one of the first in the Union to use the albumen process—now he uses the collodion. His pictures on glass, the Heliographs, that I saw in Mr. Faris' gallery. are exquisite; too much praise cannot be bestowed upon them, Farther along Fourth street is

Mr. R. Harlan. He has the most beautiful gallery East or West; he has the spacious rooms formerly occupied by J. P. Ball—his pictures in daguerreotype cannot be excelled, the photographs are not so good as they might be; they get their share of business, and their operator, Mr. T. Ball, is a courteous gentleman. Their artist, Mr. R. S Duncanson, is better in landscape than portraiture. Opposite the Custom House and Post Office, is

Mr. Digins. His gallery is neat, and he has not many specimens yet; from what I saw, he understands well his business.

J. P. Ball, formerly of Ball & Harlan, is a few doors west; he has one of the neatest trim galleries here, and is probably the best daguerrean operator here. He showed me a camera similar to the Solar Camera, an invention by Prof. Hall of this city, made long before Mr. Woodward's of Baltimore was put before the public. There cannot be as much said in its favor as yet to place it superior to Woodward's, although I see no difference in the machine. I only speak of the prints. They are not so sharp and distinct.

There are many photographic galleries here; I suppose they number about fifty; and you can get all kinds and all priced pictures, from twenty-five cents up to five hundred dollars.

The Queen City can boast of more good artists now than any city—save New York—in the Union. First we may mention Jas. H. Beard, the artist who is probably at the top rung of the ladder, as a portrait and historical painter; J. O. Eaton is a superior portrait painter, and his pictures bear resemblance to those of Elliott. E. C Cridland, a young man of great genius, and one day will be foremost in the art; R. S. Duncanson, Mr. Wickersham, the Frankinstines, H. Kemper, H. Hamel, Mr. Auberg, Miss Jove, J. R. Tait, and a host more too numerous to mention, fill up the long train of western artists. I had forgot to mention that Mr. Hawkins has taken the premium for his Heliographs at the great Mechanics' Fair, and deservedly so. I hope soon to drop you a line from here before I leave. Yours, J. R. J.

Bichloride of Phosphorus.—This compound is formed when phosphorus is introduced into a jar of chlorine gas, it takes fire, and a white substance, the perchloride of phosphorus concretes on the sides of the vessel. It volatilizes at a temperature below 212° and may be made to crystalize by fusion under pressure.

From the Liverpool Photographic Journal.

SPECIFICATION OF MR. J. PERRY'S PATENTED PRINTING PROCESSES.

In accordance with our plan of making this journal a repertory of photographic patents, we publish Mr. Perry's specification, notwithstanding its having already appeared in *Photographic Notes.*

In pursuance of the conditions of the Letters Patent, filled by the said John Perry, in the Great Seal Patent Office, on the 26th of February, 1857.

"My invention consists of certain processes, whereby photographic images or pictures may be obtained, which will be absolutely permanent and insensible to the action of solar light.

"I may here state, that my invention relates to the preparation of what are known as 'positive' photographic pictures, such pictures being obtained or printed by the operation of the solar light, from 'negative' pictures previously obtained on glass or other suitable materials, in the manner well known to persons conversant with photography.

"In the first instance, I prepare the paper or other material to be used by floating it on a saturated solution of chromate of ammonia or bi-chromate of potash. The paper or other material having been then dried, may be used for printing from the 'negative' picture in the ordinary way, and the 'positive' impression or picture having been thus obtained, I thoroughly soak and wash the same in pure water, in order to dissolve and remove the chromium from the high lights of the picture. The picture having been sufficiently washed, I then dip the paper or other material in a solution of proto-sulphate of iron, and having allowed it to remain a few minutes, I subject the picture to washing and soaking in pure water, and then pour on the same a small quantity of gallic acid or pyrogallic acid, or tannin in solution, which immediately combines with the iron already existing in the shadows of the picture, and produces the depth of tone or color required, or should the color of the picture be unsatisfactory, it can be modified at pleasure by the use of a weak solution of any of the alkalies or acids.

"In the preparation of the paper or other material, I do not, however, confine myself to the use of the chromate of ammonia or bi-chromate of potash, but occasionally use other combinations of chromium, inasmuch as any of the combinations of chromium, inasmuch as any of the combinations of chromium or chromic acid with soda, silver, tin, lead, zinc, bismuth, iron, cadmium, antimony, and nickel, may be employed for the like purposes, and will produce the like results,

"In some cases I use the chromate of iron in the preparation of the paper or other material, in which cases, after the processes of printing and washing have been effected, the picture is ready at once for the application of the gallic acid or pyrogallic acid, or tannin, whereby the process is in some degree shortened and simplified.

"In some instances, and where great strength or depth of color is desired, I apply solutions of any of the soluble salts of silver, tin, lead, zinc, cadmium, antimony, nickel, or bismuth, or any of the same combined with ammonia, to the paper or other material previous to the application of the chromium.

"I may here state, that I do not profess to confine myself exclusively to the use of the proto-sulphate of iron, after the application of the chromium to the paper or other material, in order to produce change of tone or modification of color, but occasionally use other compounds of iron, namely, the acetate, nitrate, tartrate, citrate, oxalate, chloride, or phosphate, for such purposes; and in some instances I employ, at the same stage of the process, any of the salts of silver, coppor, tin, lead, zinc, cadmium, antimony, nickel, or bismuth, for the like purposes. In some cases also I employ the acetate, oxalate, tartrate, or citrate of iron, or either of such salts combined with ammonia without the chromium, but in conjunction with the subsequent use of tannin, or gallic acid, or pyrogallic acid. In order also to produce color and to improve the general effect of the pictures, I sometimes use cyanogen and other analogous articles used in dyeing, and which I apply to the paper or other material, in the matter herein-before mentioned with reference to tannin, gallic acid, or pyrogallic acid.

"The processes herein-before described are applicable to paper, linen, cotton, metallic surfaces, and wood. In cases in which paper is employed, I sometimes prepare the surface thereof with gelatine or size, in the manner already understood, previous to the application of the chromium, as, by so doing, the picture will be retained more on the surface, and a remarkable depth and brilliancy of tone will be obtained.

"The peculiar advantage of my invention consists in the great durability or permanency of the pictures obtained by means of the processes herein-before detailed, and in the trifling cost at which such pictures can be produced.

"Having now described and particularly ascertained the nature of my said improvements, and the manner in which they are to be applied as used, I would observe, in conclusion, that I do not confine or restrict myself to the precise details or arrangements which I have described or referred to, inasmuch as variations may be made therefrom, and chemical equivalents employed or used instead, or in the place of the substances and compounds herein-before mentioned, or some of them, without deviating or departing from the principles or main features of the said invention; and I wish it to be distinctly understood that what I consider to be novel and original, and therefore claim as the invention secured to me by the herein-before in part recited Letters Patent, is,—

"Firstly, the use of chromic acid, or any of the combinations of chromium, as a mordant or mordants in photographic printing, for the fixation of iron or other metallic bodies herein-before in that behalf mentioned, in conjunction with tannin, gallic acid, or pyrogallic acid, or any compound or compounds containing the same, or any mere chemical equivalents thereof.

"And, secondly, the employment of the acetate or other salts of iron, herein-before mentioned, with or without the use of chromium, in the production of photographic images or pictures, when used in connection with the subsequent application of tannin, gallic acid, or pyrogallic acid to the paper or other material employed, as herein-before described, or any mere chemical equivalent or equivaledts thereof. JOHN PERRY."

From the Liverpool Photographic Journal.

THE MANCHESTER ART EXHIBITION.

Manchester, October 10, 1857.

To the Editor of the Liverpool Journal:

SIR,—Having read with much interest the remarks of ≦ on the Photographic department of the Art Treasures Exhibition, and also those of O in the London Journal, which are singularly corroborative of the opinions expressed in the former, I have, of course, noticed the very natural expressions of surprise at the absence of Manchester productions, and I think it only justice to the members of this society that I should state what I know of the matter. A number of Mr. Delamotte's circulars, stating there would be room for about a thousand pictures, and suggesting a complete series of portraits of eminent men, were sent to me, and by me to most of the members of our society; advertisements were also inserted that I would take charge of Manchester photographs. In consequence, I received several lots of photographs from members—one lot framed. A peculiarly inconvenient plan was here adopted: I was instructed by Mr. Delamotte to send the pictures to him, for examination, in London. Of course this stopped Manchester contributions, for it was clear that the best way would have been to have the pictures inspected here. However, the pictures were sent to London (after taking the framed ones out of their frames), and what was the result? I venture to say that many of the pictures sent by me (for I cannot refer to those sent direct to London) were of more than average merit. I think judges would be ready to allow that much worse specimens have been hung, and yet only two paper pictures sent through me have appeared in the exhibition. The pictures that I sent were returned to me,* and several of the parcels appeared not to have even been opened. This treatment of exhibitors is unfortunate; for not only are they disappointed by the rejection of their own pictures, but they are discouraged with respect to future exhibitions, and thus the advancement of the art is permanently damaged. I know not to whom to impute blame in this matter, but it assuredly lies at some one's door. We are not yet aware what Mr. Delamotte's position with the committee was; but I have no doubt that he has labored under some restrictions which have tended to the present state of things. The situation of the photographs is very bad, and as the band is close to, and is a great attraction, you cannot with comfort inspect the pictures which are thus treated with comparative neglect. I hope that this chapter in the secret history of the exhibition may soon be unfolded The complaints I hear are neither few nor far between, and their utterance is not only deep but loud.

I am, yours truly,
HON. SEC. M. P S.

From the Liverpool Photographic Journal.

COLORING COLLODION PICTURES.

To the Editor of the Liverpool Photographic Journal:

SIR,—Having constantly worked the positive collodion process since 1852, and during that time tried most of the methods of coloring in use, I have found none succeed so well as the process I give below, when the usual powder colors are intended to be used. The two processes given in the last number are defective in many respects: First, the isinglass requires to be warmed each time it is used, and very often cracks under the varnish in damp weather, spoiling the picture; the same with gelatine. Second, the turpentine process is very difficult to manage properly, the color sticks in patches, and when poured on it requires a very strong heat to dry it, often causing the loss of the picture by the glass breaking, particularly in frosty weather. The process given below is free from those objections.

Make a saturated solution of shellac in alcohol "without heat," mix one drachm with twenty-three of alcohol, well shake it and filter; *very* slightly warm the picture, pour this solution on in the same way as collodion; let it dry; then color as usual, and varnish with a solution of benzole and gum dammar. A little retouching will complete all. This method will succeed best with a good black and white positive, not so well with the yellow-browns now so plentifully seen in every street. In your next I will give the process of putting in backgrounds, and the proper way of working up a picture in colors.

Yours truly,
THOS. GILLIVER.

THE DAGUERREOTYPE FOR SCIENTIFIC RECORDS.

The report of the Kew Observatory, presented at the meeting of the British Association, observes, with respect to some experiments that have been made with a view to photograph the spots on the sun's disc, that the imperfections of the collodion film are so apparent in the negative pictures made, that it is deemed advisable to have recourse to the positive process, and it is even contemplated that the Daguerreotype ultimately alone will have to be employed.

This is only returning to the former practice of the Kew Observatory, as carried out by Mr Ronalds. Some years since we assisted, *con amore*, at Kew in the photographic experiments relating to meteorological registration, and although we succeeded in making an exact fac-simile *in the camera* of a square foot of paper divided exactly into square inches by lines, Mr. Ronalds could not be convinced that sufficient accuracy was attainable on paper. Recourse was therefore had to Mr. Beard for permission to use the Daguerreotype, and Mr. Nicklin was engaged to carry out the process. Without at all admitting that "it is little better than childish folly" to employ collodion, we may say that it does appear to us that as far as experience has been obtained the Daguerreotype does yield greater delicacy and accuracy of result for such scientific purposes. We, are of opinion that the Daguerreotypes of the moon shown in the American department of the Exhibition of '51 have not been equalled by anything done upon collodion, Mr. Crookes' praiseworthy results not excepted. We, however, still expect to see collodion made available for scientific registration purposes.

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* Not until I had been threatened with legal proceedings, of which Mr. Delamotte was informed.

From the London Art Journal.

ARTIST-LIFE.

SANCHEZ COELLO.

The deprivation of liberty of the high-spirited young prince, Don Carlos, the Infant of Spain, by his father, Philip II., turned the eyes of the courts of Europe upon that of Madrid. The prince did not bear either the humiliation or the imprisonment patiently. It was said to have originated in two causes: the inclinatian of Don Carlos to support the revolted provinces of the Netherlands,—and his attachment to Philip's young queen, Elizabeth, to whom he had been affianced, and whom his father had now married.

In a state of desperation, Don Carlos, made several attempts on his own life, and some of the nobles endeavored to intercede with the king in favor of the prince. Philip was inexorable, and after six months' imprisonment caused the Holy Inqusition to give judgement against the prince, and thus the sovereign and the father, joined to the base instruments of a bigoted and merciless faith, passed sentence of death upon a young son of excellent hopes, heir to the crown, and related to the most powerful princess of Cristendom.

The sentence was not publicly executed; but to make the story, if possible, still more criminal in the eyes of astonished Europe, Don Carlos died in prison by means of poison secretly administered to him by the king's order.

This history is so dark and revolting as to surpass all other tales of the superstition of the times of *Autos-da-Fe*, and inquisition trials and condemnations. The consort of Philip was a queen of a meek, mild character; nor is there any proof in history of her passion for the son of her husband, but she was first affianced to the young prince and the conscience of Philip must have told him what comparisons she would draw between her present tyrant husband and him to whom she had been betrothed. The king found the voice of Europe loudly rased against him, but at Madrid, courtiers were not wanting belonging to the household of so bigoted and despotic a monarch, to try and justify with manæuvring address his conduct in his own eyes. The gloom of his soul was never lighted up by a single spark of any great or generous emotion; the stern and the hateful alone were there, and deeply implanted. Day by day, his selfish jealousy rested more and more on his pride, and his perpetual apprehension from without was always on the alert.

Yet he swayed a mighty sceptre with an iron hand; his illiberal, unflinching, and hard nature had plunged the Low Countries into blood and misfortune. The surrounding nations called on him to forbear, but he poured out all the ire of his relentless will upon an industrious and thriving people; and he sent his generals, his favorites, and his inquisitors thither over the trampled bodies of his Protestant subjects, on a path of blood and revenge.

And now we will introduce a dramatic scene in the subject; and one entirely true to history.

Philip is alone in his solitary chamber, his slumbers are disturbed, his tapers burn dim, his pride is alarmed by the intelligence that day received from the court of Austria, of their disapproval of his conduct; his gloomy suspicions are excited, the memory of his young son tortures him; his queen's suspected fidelity rankles in his mind; he is reading the last of the ferocious Alba's despatches. The hero, Egmont, has fallen,—the bitterest of his enemies, the most noble of his foes; blood—blood is everywhere, and the great tyrant should be content. But, no! his conscience,—a pale, flickering ray of humanity,—makes him wretched! One of his courtiers comes to him—he tells him that he is a great king, a favored king, a prosperous king, and that he is happy. He answers—

> "Who dares to say
> That I am happy!"

and with cold, implacable, and sneering irony, he tells his favorite to begone!

Such was Philip in those days when Titinn often painted his portrait; and let it be here remarked that the genius of Titian chose to paint him oftener in profile than otherwise, probably as being most advantageous in concealing part of the king's vile countenance; yet, no wonder, that in looking at those portraits, we turn aside from the pictures, and shudder! Such was Philip, when the Pope, his lord and master, absolved him at the altar, from the murder of his son! Such was Philip, when the inquisitors surround him and tell him,

> "Far as the Cross is honored
> He is honored."

Yet a pause in his career takes place; his courtiers' adulation, the death of his unfortunate victim,—Elizabeth, his queen,—and Time, that worker and changer of men and events, brought him out later in life in a different character.

Sanchez Alonzo Coello, a Spanish painter, was, for a length of time supposed to have been a native of Portugal, married to a Spanish lady at Madrid in the year 1541; but after his death, when Don Antonio Herrera, his grandson, received the Order of Santiago, it was proved that the favorite friend and painter of Philip II. was born in the beginning of the sixteenth century, at Benifayro, in Valencia, and that his name was Sanchez Galvan Coello.

When very young Sanchez accompanied Sir Antonio More to Lisbon, where the former was sent by the emperor, Charles V., with a commission to paint the portraits of the Royal family. The Queen of Portugal recommended Sanchez to the protection of her brother Philip, who not only appointed him painter to the court of Spain, but accorded him many priviledges, and the intimacy and confidence due to his talents, and pleasing manners. When absent from Madrid, the king wrote to him frequently, addressing his letters to his much beloved son, Alonzo Sanchez Coello, (al muy amado hijo, Alonzo Sanchez, Coelio,) and to show how a love of the Fine Arts may soften the heart even of a tyrant and criminal, Pacheco's account of the friendship between the king and the artist is here given.

"The king gave Sanchez a large house near the palace, with which a passage communicated, and where he could enter at all hours without being announced, surprising him sometimes when at dinner with his family; and when Sanchez rose to salute him as king, Philip ordered him to remain at table, and would then walk familiarly into his painting-room; at other times he would arrive when the artist was at his work, or occupied in designing some new picture, entering the room and placing his two hands on his shoulders before Coello was aware of the king's presence"

Coello painted Philip's portrait often, and in various costumes; in armour, on foot, on horseback, or wearing a berret and cloak. He also possessed the friendship and favor of the other members of the royal family, whose portraits he painted, to the number of seventeen;—queens, infants, infantas, who came to his dwelling familiarly to converse with him and play with his children; and his house was frequented by all who sought the king's favor. The proudest Spanish grandees were often seen at his table, as well as Don John of Austria, Cardinal Grandville, and all the minsters,—so his court-yard was continually crowded with horses, carriages, and servants, and being the most renowned painter in all Spain, he soon realised a fortune of 55,000 ducats.

Coello having long been occupied in portrait-painting, the king desired that he would contribute to the decoration of the Church of the Escurial, and painted seven altar-pieces from the lives of the saints. He also painted a picture representing St. Ignacio di Loyola, said to be an exact resemblance taken from a mask of the saint made after death.

Owing to the numerous fires in Spain which have destroyed so many collections of pictures, there are but few of this artist's works remaining now in Madrid; the best among them is supposed to be "The Martyrdom of St; Sebastain," in the chapel of the Convent of St. Jerome, which was painted in 1580, in the style of the grand compositions of the sixteenth century. There are several good pictures by Coello in the Spanish Gallery of the Loure, in Paris; one of them, the portrait of Wincelaus, the brother of the Emperor Maximilian, may be mistaken for the work of Holbein. There is an excellent portrait of Don John of Austria; and some others, all dressed in royal costumes of great taste and magnificence, represent the princes and princesses and of the families of Austria and Spain.

Philip was constant in his friendship for Sanchez Coello; and the painter made a noble use of his great fortune, founding the charitable institution at Valladolid for orphan children.

By the death of Coello, in 1590, the king, in the decline of life as well as of fortune, lost his best and only resource againt the vexations of state reverses, and the intrusion of remorse of conscience; in spirit and mind proud and haughty, and harsh through frequent disappointments, there were moments still, when his pride called for the relief of familiarity. The account of the frendship of the tyrant Philip and the painter Coello, very much justifies Schiller in the representations of that king, in the tragedy of "Don Carlos," and makes the conversation supposed to have passed between Philip and Poso, not so totally unnatural as critics affirm it is. In such moments his temper softened, and he would mount the narrow staircase that communicated with the painting-room where Coello was at work; then it was that the king found that case of mind to which he was elsewhere a stranger. Coello is represented as master of many subjects as well as that of his art: he knew the king well, and the world too; he had studied at Rome, he could talk of his profession, and of Raffaelle, and of Italy; of Portugal and her monasteries, and of the individuals of the king's family at that court. And Coello was a man of good sense and discretion: if Philip was silent, Coello pursued his work with all the energy and spirit of his genius, the king sat by, and contemplated his progress, and for a moment he forgot his crime, his cruelty, and his superstition; and in Coello's studio at least he was secure from the intrusion of others less pleasing to him.

Whoever has been accustomed to look on during the operation of any art or industrious design, must have experienced a repose of thought, an interval from wordly inquietude, that steals insensibly or gradually on the mind and that, like sleep, refreshes the weary or unhappy spirit. If such be our feeling in following the laborer in his field occupations, or the mechanic at his trade, how much more when the eye is carried off from every other object, and fixed on one of the most pleasing in the whole extent of human art—the creation of images of the mind.

Even the tyrant and executioner Philip felt this; and his mind softened and improved under the influence of Art. In the council-chamber, the revolt of provinces, and the destruction of armadas, thwarted his ambitious views; blood was on his heart and hand, and haunted his imagination; but in the painting-room of Coello he saw himself more favorably, and for one moment his conscience was in repose. That darkened room was to him worth kingdoms, and in that room only are the moments to be looked for that can reflect the least credit on the memory of the name of Philip II.

Viardot, in his account of Spanish painters, tells us that Sanchez Coello left behind him several distinguished scholars Pantoja de la Cruz, Felipe de Leano, and his daughter Dona Isabel; this lady, whom Juan Perez de Moya wrote an account of, in his work called "Santae e ilustres mugeres," was born in 1564, at Madrid, and died the widow of Don Francesco de Herrera y Saavedra, knight of Santiago, in 1612. She learned the principles of her art from her father, and had a great reputation for painting portraits in oils; she was also cited as an accomplished woman in music and general knowledge.

For the Photographic & Fine Art Journal.

WASHINGTON GALLERIES.

Washington, D. C., Nov. 5, 1857.

Mr. Snelling,—I arrived safely here at the Capitol of the Union, and hastened to see what was to be seen in the photographic world. There is to be great times here this winter. Much rivalry exists amongst the different galleries, but the operators are on the best of terms and the best feeling prevails. At Whitehurst's gallery, their strong team of photographers consists of Mr. O'Neal and T. J. Simons; both of these gentlemen I have spoken of heretofore. They are not only photographers of the first order, but they rank high as meritorious artists and gentlemen. The business has not been very good in Washington during the past summer and fall months, but all have managed to live on what they have made heretofore. At Mr. W.'s gallery there is little or no business done in colored photographs; all they sell are plain. But the coming winter they anticipate a large share of the public spoils.

Mr. Jas. McCleese of Philadelphia, has opened his new gallery below the Kirkwood House. His operator is Sam'l A. Cohner, Esq., a practical chemist of some notoriety; he is very successful in all of his operations. I was shown many of his beautiful plain photographs, that in tone and sharpness were exquisite. But 'tis just like Mr. McC., he never has any body about him who does not fully understand his business. His gallery is one of the finest in Washington, and the many water colored pictures that are adorning his walls, speak highly for the business. His artist is a man of the first order and paints with unusual rapidity. Mr Vannerson is the agent of Mr. McCleese's gallery, and for the length of time he has resided in Washington, no man is more capable of doing the agreeable in securing the public patronage This gallery will do a large share of the business the coming winter. I fully predict a brilliant career for them, and well they deserve it. By the time your next number appears, I hope to be able to speak more of this gallery.

Mr. Walker the portrait painter does probably the largest share of the business done in life-size oil-portraits. A portrait of himself taken by his operator, Jas. Cummings, Esq., exhibited in a window on Pennsylvania Avenue, is the most perfect specimen of photographic art I ever saw in life-size, taken by Woodman's Solar Camera. This style of picture has become very popular, and Mr. W. has orders for many portraits of this kind.

Prof. Churchill is painting photographs here with success. The Professor is a man of great genius as an artist, poet, and musician

Mr. Talmage has a gallery on the Avenue, and takes cheap pictures.

Mrs. Redman has a gallery a few doors below. There are several others here, and all still live.

I was in the artistic room at the capitol Saturday last, and looked with delight on the great works of the late lamented Crawford. There are several large colossal figures in marble very beautiful

Mr. Washington, the Historical Painter, has lately taken the gold medal at the Maryland Fair, for his picture of the Huguenot War.

Mr. Stanley is busy painting portraits and Indian scenes. The Artist's Association will hold a meeting this week to pass resolutions of sympathy for Crawford, lately deceased. A just tribute to the dead.

Washington will be very gay this winter and many artists will be here, when I hope to keep your valuable Journal posted up in my plain unvarnished way.

Truly yours, J. R. J.

From the N. Y. Daily Times.

MISS. HOMER'S BEATRICE CENCI.

This statue, which is the first considerable achievement of a gifted young lady, who deserves better things of us than to be baptized by the ridiculous title of "The American Sculptress," has just been brought to this City from Boston, and is now on exhibition at the rooms of the Academy of Design, in Tenth street near Broadway.

It adorned the British Gallery in May of this present year, and excited in London the very general attention of the artistic public, and the admiration alike of artists and of amateurs.

The conception of the statue is masterly, and could only have proceeded from a mind capable of a very brilliant development. It is exceedingly bold and original without being overstrained, and striking without being affected. The unhappy daughter of an evil house is represented sleeping in her dungeon. Her attitude indicates the exhaustion consequent upon a long-continued and agonizing tension of the whole system—mental and moral as well as physical. The disposition of the limbs, the line of the body, and the fall of the head, all concur in producing this effect, and the impression which is at first made by the whole figure upon the spectator of something like awkwardness and disproportion, gradually resolves itself into a recognition of the circumstances of the case, and of the condition of the sufferer. A critical anatomist will, nevertheless, detect certain inaccuracies of articulation and certain improbabilities of flexture, particularly in the right arm and in the right leg, but these are by no means prominent as faults. A more general objection which may be urged against the work is also a more serious one. The figure is too large, and in its proportions too Amazonian to meet exactly our ideal of the delicate girl urged to madness by unnatural misery. The robust temperament of the artist has perhaps betrayed her into this misapprehension of her subject, but it strikes us as the chief blemish upon a creation otherwise most remarkable and most promising. The face is wonderfully lovely; and preserves all the beauty of the Guido picture, redeemed by the soothing touch of sleep from the piteous traces of wrong and wretchedness which make that exquisite head a memory of infinite pathos to all who have ever looked upon it. In Miss Homer's marble, "Beatrice" forgets the curse of earth and tastes the mercy of Heaven. We might dwell upon certain qualities of execution which augur highly for the artistic future of our accomplished country-woman, as, for instance, upon the general delicacy with which the surface of the statue is manipulated upon, the consummate skill with which the draperies are gathered up and worked rounded to a close without abruptness or improbability, and upon the graceful management of that most fascinating but most perplexing member the foot, which falls upon the slope of the couch with inimitable ease and naturalness. But we leave these points to be eliminated by the discrimination of our readers, who will not fail, we think, to justify our faith in their good taste by hastening to gratify it before the removal of "Beatrice" to her final home in St. Louis.

FULMINATING SILVER.

This substance was discovered by Berthollet, in 1788. It may be formed by dissolving very pure silver in nitric acid, and then precipitating it by lime water. The precipitate is put upon filtering paper, which absorbs the water and the nitrate of lime with which it was mixed; then pure liquid ammonia is poured upon it, and allowed to remain for twelve hours: it is then decanted off, and the black powder on which it stood is placed cautiously and in very small portions upon bits of filtering paper. This powder is fulminating silver, and while moist explodes with violence, if struck by a hard body. When dry the slightest touch is sufficient to cause it to fulminate. When liquid decanted off this powder is heated in a glass retort an effervescence takes place, nitrogen gas is emitted, and small crystals make their appearance, which are opaque, and have a metallic brilliancy; these fulminate when touched, even though covered by the liquid, and often break in pieces the vessels in which they are kept.—*Berthollet Ann. de Chim.* i. 54.

From the Liverpool Photographic Journal.

MR. KEITH'S PROCESS.

To the Editor of the Liverpool Photographic Journal.

Sir,—I have just read in the *Photographic Notes*, of August 1st, a letter signed "R. E." which—notwithstanding its impertinence—I do not think I should allow to pass unnoticed.

It is occasionally a work of great difficulty to convince some individuals of a truth that is at once, with the greatest ease, apprehended by others.

"R. E." after stating that he had expected "some experienced photographer would give his opinion upon Mr. K.'s claim," proceeds to quote from my paper, which has apparently afforded him severe mental exercise. He concludes his extract thus: "'The remainder of my process is so widely different from the usual theory of positive pictures, that I have no doubt it will excite some surprise.'"

I should like to know what was to excite surprise? The differences between the processes, of course. That practised by *me* on the one hand, and those practised by *others* according to the usual theory. "R. E." further remarks, "'Mr. Keith alluding to Mr. Hardwhich, says, 'But mine is the very reverse.'"

Mr. Hardwhich recommends,	*I recommend,*
1. Thin and lightly iodized collodion	1. Thick and fully iodized collodion.
2. Twenty grain nitrate bath faintly acid.	2. Forty grain nitrate bath, very acid.
3. Proto-sulphate of Iron.	3. Proto-nitrate of iron with nitric acid.
4. Weak cyanide	4 Strong cyanide with the addition of nitrate of silver.

It surely does not require any extraordinary intellectual effort to discover sufficient difference between these two processes to warrant me in saying, "mine is the very reverse."

He further asks, "What does Mr. K. claim?" I answer him, nothing. I was merely describing, for the benefit of the Liverpool Photographic Society and others, a process by practising which carefully you would "scarcely see one in a hundred of positive portraits that was *not* presentable" I never dreamt of disputing the claim of Professor Hunt to the discovery of the use of proto-sulphate of iron, or Dr. Diamond to the proto-nitrate.

I shall now notice what is said respecting me in giving the concluding extract from my paper. "It is singular that two individuals, without any communication, should *hit upon* formulæ so near alike and yet so *different from any before published.*" "What does this last sentence mean?"

I will tell him. It means that I had never seen or heard of M. Martin's formulæ, consequently his inference that I "must have taken it from *La Lumiere*, or some other work," is illogical, presumptuous, and incorrect. It means that I had reason to suppose that Mr. Sutton had in some way possessed himself of my formulæ.

I shall now bring forward the materials furnished by Mr. Sutton in support of this belief. In *Photographic Notes*, No. 19, page 28, Mr. Sutton speaks of the developer as "my developer." In the number of August 1st, speaking of me he says, "He has lost credit by allowing me to publish it before him, and then getting out of temper about it." I *have not* lost credit by allowing him to publish my formulæ before me, but I think *he* has lost credit by publishing it without having the candor to say whence he derived it. He now states, "I am indebted for this developer to Mr. J. Worden, of Hull, who arrived at it by an *independent course of experiments.*

The Mr. J Worden named by Mr. Sutton, after leaving Hull, practised for some time as a photographer in Newcastle. Some time previously I had furnished Mr. Mawson, of Newcastle, with my formula which were by him published and extensively circulated while Mr. Worden was practising there. I now leave your readers to judge whether I had sufficient grounds for *supposing* that my formulæ had been abopted by Mr. Sutton.

I may remark, before quitting the subject, that I do not agree with "R. E." that agitating the subject in his manner is at all likely to advance photography, and in conclusion I may say to Mr. Sutton, that I have not lost my temper, on the contrary, I trust I have treated the matter throughout as one of "pleasantry."—I am, Sir, your obedient servant,

Wm. Keith.

From the Liverpool Photographic Journal.

IMPERFECTIONS IN COLLODION FILM.

To the Editor of the Liverpool Photographic Journal.

Sir,—I shall feel obliged if you will, in the next number of the *Liverpool Photographic Journal*, answer me the following queries:—

1. In taking negatives, developing with the iron solution, and afterwards intensifying by means of corrosive sublimate and dilute ammonia, I find on the plate drying *innumerable* small holes which print through. The bath was *quite* clean, and the collodion gives a slight creamy film, but cannot be over iodized, as positives taken with the same collodion and bath are everything I can desire.

2. In using a bath for positives, which has been in use since February last, I found a sort of repulsion at the upper part of the plate (the lowest in the camera), between the film and the developer, and a wave was the consequence. Can you tell me how to obviate this tendency in the bath? It is not owing to insufficient acetic acid in the developer, for I prepare that as follows:—

Proto. Iron	20 grains.
Acetic acid, gl	30 drachms.
Alcohol	10 "
Water	1 ounce.

This gives a beautiful dead white, and has the advantage of remaining good for weeks. You may say "try pyrogallic for negatives;" my answer is—that to develop a negative properly, I have to expose for fully three-quarters of a minute, whilst by the other process ten or twelve seconds is amply sufficient, even when the light is not strong. Hoping you will kindly favor me with the desired information, and apologising for the trouble incident to the enquiry.—I am, Sir, your most obedient servant.

W. Gunter.

[The defect No. 1 is not familiar to us. Does the collodion require filtering? Small solid particles might interfere with the production of a negative, though not injurious to a positive, which is obtained by a less exposure to light; we have seen albumen plates full of holes in the sky, and yet the half-tints were free from them. Can you use the same collodion with a less acid bath? an experiment on a small scale would suffice. No. 2 is to us equally obscure. Dip the plate again into a silver bath after exposure, or use more alcohol in the developer. Making a new bath is often the best way to get out of the difficulties induced by a very old one. Can you give the exact details of the manufacture of the collodion you use? Although we were the first to produce and publish a process for direct positives on glass, we have never been great admirers of the art. We always regret that a successful positive is not a good negative. The advantage of multiplication on paper is great; still we have seen positives on glass, especially some American ones, which tempt us to think it desirable to have a good one positive as well as a good negative of the same person. We must not omit to mention that the American process, when tried in London, failed to give results of equal beauty and brilliancy. Perhaps some of our readers will be good enough to remark upon this subject.—Ed. L. & M. P. J.]

Personal & Art Intelligence.

— Our present issue brings us to the close of another year, and although it has been a disastrous one to many, the photographer has, undoubtedly, less to complain of than any other class of business men. Of course the pressure effects all more or less, and he cannot expect to escape entirely: but very few have enormous expenses to look after and drag them down still deeper into the slough of despond, neither should he have such heavy debts to worry him. If he has been prudent, his expenses have been fully met by his receipts, for his is eminently a cash business, and in such cases it is more easy to graduate expenses than where promises to pay are looked for to meet liabilities. They are not, we think, destined also to feel the pressure for so long a time as the merchant, for his receipts are in those small sums which are scarcely felt when parted with by the possessor—while the desire of every one will be as strong to see themselves as others see them, and will the sooner make them forget the "hard times." Young men must have the portraits of their sweethearts, while the young ladies will not be content, or sleep lightly or happily unless they can ever have the cherished face before them. Then again, the holidays are approaching rapidly—those days that make all forget their sorrow, heaviness of heart, and lightness of pocket; when gifts of friendship and tokens of love must pass freer than gold, or silver, or precious stones—and in casting about for the means of gratifying this greatest pleasure of the heart, the daguerreotype, the ambrotype, and the photograph, will claim the first attention as the most acceptable as well as the cheapest. The season of gifts and pleasure is no sooner past, than genial spring opens its portals to the light heart, sheds its glory on all, revivifies business, and cheers the desolate. Hard times cannot remain long with a people like us, who—like an india-rubber ball—rebound the higher the more violent we are thrust down, and with equal velocity. "A soft answer turneth away wrath," and a cheerful heart soon driveth away "hard times," for while helping one another we help ourselves.

This year closes upon our *tenth* volume, finding our Journal in a more prosperous condition than at any former period, so prosperous that we have concluded to devote the better part of our time to it and its subscribers—we have therefore terminated our engagement with Mr. Anthony, with whom we have passed fifteen years of pleasantness and peace—and launched our future fortune upon the sea of photographic favor. We shall hereafter have sufficient time—which we have not had since its commencement—to make the Photographic and Fine Art Journal all that we have always wished it to be, in every department. Our personal attention will be given to the supervision of every part of the work, and, as of considerable impertance, the illustrations will be printed with the greatest care, in order that nothing may be left undone to give them as perfect pictures as paper and chemicals can make them. At all events we can safely promise that few positive pictures will be made in the United States superior to the illustrations we shall give in the Journal. We must here say, however, that there can be but one way of forming a just opinion of the majority of the photographs that appear in the Journal, and that is to cut and mount them in the usual way. If this is done, they will, in all cases, be found fifty to one hundred per cent. better than they appear in the manner we are obliged to give them to our readers. We have, however, hit upon a plan—which will be followed in our February issue and thereafter—not having had sufficient time to perfect it in time for the January number—which we are assured—by experiment—will obviate nearly all our former difficulties. These improvements will be developed as we progress.

For the last seven months we have used the same formulas for printing our illustrations; but hereafter we shall pursue our original plan, and vary the methods as much as the photographic art will permit. We shall also introduce other improvements as occasion and the liberality of our friends will enable us to do, and shortly effect the purpose we have always had in view—that of making our Journal the most elegant periodical in the United States if not in the world With the favor of our friends and the public at large we can do this, without extra cost to its patrons. We trust *our friends* will bear *this* in mind, that no matter how strenuous our efforts may be, the great dependance is upon them and their support. They may depend, that, having a mind now free to act, *we* shall do our part of the work without the least relaxation of energy, until *they* are perfectly satisfied. Our former position has led many to think that we have been trammelled by outside influence in the conduct of the Journal; but, although this view has been entirely erroneous, now the cause being removed, they should speedily disabuse their minds of the idea, and give us that encouragement they have withheld. The Journal never will be subject to any other control than our own so long as we edit it, and it shall be our purpose to suit all tastes if we can do it, without relinquishing our own independance, and it must be distinctly understood—for the action of some prove they think otherwise—that we do not sell body, soul, and mind, for the five dollars subscription paid for the Journal, or for an advertisement. May you all have a happy New Year, and plenty of prosperity, and allow us to share it.

— The Premiums distributed at the late Fair of the American Institute, for photographs are as follows:

M. B. Brady, No. 359 Broadway, N. Y., for the best plain and retouched photographs, small gold medal.

J Gurney, No 349 Broadway, N. Y., for plain and retouched photographs (a gold medal having been before awarded), diploma.

M. M. Lawrence, No. 381 Broadway, N. Y, for the best daguerreotypes and miniatures in oil, large silver medal.

Meade Bros., No. 233 Broadway, N. P., for instantaneous daguerreotypes, bronze medal.

J. Gurney, No, 349 Broadway, N. Y, for the best life-size photographs in oil (a gold medal having been before awarded,) diploma.

C. D. Fredericks, Nos. 585 and 587 Broadway, N. Y., for life-size photographs in oil (a gold medal having been before awarded), diploma.

C. D. Fredericks, Nos. 585 and 587 Broadway, N. Y., for the best crayon photographs and hallotypes, large silver medal.

J. Gurney, No. 349 Brodway, N. Y., for crayon photographs and hallotypes, bronze medal.

J. Gurney, No. 349 Broadway, N. Y., for the best photographs in aquerille, small silver medal

C. D. Fredericks, Nos. 585 and 587 Broadway, N. Y., for photographs in aquerille, bronze medal.

S. A. Holmes, No. 289 Broadway, N. Y., for the best photographic views, small silver medal.

B. Hufnagel, No. 413 Broadway, N. Y, for photographic views and copies of prints, bronze medal.

Philip E. Bogart & Co., No, 58 Pine street, N. Y., for photographs by the solar camera, diploma.

G. N. Barnard, Syracuse, N. Y., for photographs on wood, bronze medal.

C. C. Harrison, Fifty-third street, near East River, N Y., for photographic cameras (a silver medal having been before awarded), diploma.

Robert A. Werner, No. 25 East Broadway, N. Y., for an ingeniously planned diaphragm, diploma.

A. Beckers, No. 411 Broadway, N. Y., for a stereoscopic panorama, diploma.

R. Newell & Co., Philadelphia, Pa., for three delicately tinted portraits, diploma

J. Gurney, No. 349 Broadway, N. Y., for the best photographs in pastel bronze medal.

C. D. Fredericks, Nos. 585 and 587 Broadway, N. Y., for photographs in pastel, diploma.

Without making invidious comparisons, we think that nothing shows the imbecility of the American Institute to greater advantage, than this whole list of awards.

— Mr. Wenderoth has succeeded in reducing the operations of the Solar Camera to the most simple requirements. He has sent us a number of portraits; some of them taken by the sun instantaneously, others by gas-light in two, three, four, and five seconds; and still others by the light of a common oil lamp, in five, eight, ten, and sixty seconds, according to the size. This destroys the prestage of Old Sol, so far as positives are concerned, for the portraits are quite equal to the majority now printed by his brightest rays.

— We see by the *California Farmer*, that Mr. R. H. Vance has again carried of all the prizes for Photographs, Ambrotypes, &c., at the late State Fair at Stockton.

— Mr George K. Warren received the *silver medal* for Photographs and a diploma for Ambrotypes, at the recent Middlesex County (Mass.) Fair. Mr. L. G. Bean got the *bronze medal* for Ambrotypes.

Messrs. Davie & Francois are exhibiting two large paintings of *Adam* and *Eve* in Albany, which are highly spoken of by the Albany papers. We append an extract from one of them:

These original and splendid paintings have excited the admiration and astonishment of the most distinguished *connoisseurs* of painting in this country. The first pictures represents Adam, at the time he awoke from the deep sleep, when Eve was taken from his side. Adam appears in a bowed posture; his hands lifted in admiration, one having been entangled in a vine. The face of Adam is a study for an artist. His soul stands in his eyes, like the sun in the heavens, and the mingled emotions of love and devotion, are hit off with a skill which would do credit to Reubens or Lawrence. Before our first parent stands the graceful and beautiful Eve—her soft soul-lit eyes are half closed, and her harvest of shadowy hair falls like a veil on her arms and shoulders. These figures stand out like *living* statuary on the canvas, and one would scarcely be surprised to see them walk out of the gilded frame. The artist has animated his figures with souls which gleam on their intelligent faces—we watch their lips to hear their conversation. The second picture represents the pair when driven out of Eden. The gorgeous garden of beauty, with its blushing flowers and clambering vines—its beautiful shrubs and magnificent trees, is here exchanged for a dreary wilderness of sand and rock and weeds. The serpent, so eloquent and so spirited in the first picture, here draws his long length upon the ground. Adam wears a face sprinkled with tears, and so sad, the spectators frequently burst into tears, at beholding it. Eve follows close behind him leaning upon his shoulder and the broken heart of our beautiful mother is so vividly portrayed we cannot look at it without having emotions of pity kindled in our breast. These pictures are nude, but so chaste, the most fatidious beholder can take no exceptions to there exhibition. This country has never had on exhibition any paintings approximating to the perfection of art, and the truthfulness to nature, displayed in these wonderful works of art.

— We clip the following from the *Baltimore Dispatch:*

The Fine Arts—Photographs and Ambrotypes.—Under this caption we wish to call the attention of those desiring faithful and perfect likenesses from life or copied from pictures of any size, from the smallest miniature to over full life statue on canvas four feet by six, or larger if desired—to the old established gallery, 205 Baltimore street, so long occupied by Mr. J. H. Whitehurst, and lately purchased by Mr. Benja. F. Hawkes, who has for the last three years been engaged in the same gallery with Mr. Whitehurst as his assistant, clerk and salesman, superintending all of Mr. W.'s business in his repeated and necessarily protracted absences at his other galleries. Mr. Hawkes' presence so unremittingly in the show room has had the effect to enhance his qualities as a salesman, and enable him to become acquainted with the wants of his patrons, which he has determined shall be satisfied. Mr Hawkes has had the gallery completely rejuvenated, beautifully decorated, painted, and furnished with much taste. The sky light, which has always been regarded as one of the best ever made, has been embellished in a superb manner, the walls being neatly papered with a very pretty satin-faced pattern, and the entire ceilings of a beautiful plain blue surface, which will give a clear active ray of light peculiarly adapted to shorten the time necessary to make likenesses, as well as to give a light and delightful appearance to the room. This gallery has many advantages over any other in this city, and will vie with any in the country, being centrally located at 205 Baltimore street, on the south side, between Charles and Light, and having the finest and best entrance hall of any gallery in this country. The arrangements for doing an extensive, first class business necessarily demands much space, and this establishment is peculiarly fitted to that end, having no less than eight rooms and two apartments for the accommodation of its patrons and the tranaction of the Photographic business in all its branches. By the politeness of Mr. Hawkes we were shown over the premises, and can particularise the rooms, which are spacious and well adapted to the purposes for which they are designed. The first is a beautiful hall of entrance, 30 by 10 feet; the second, a large and elegant exhibition room, beautifully fitted up; the third, a grand sky-light room, superbly embellished; the fourth, a neat and tasty withdrawing room attached to the sky-light for parties waiting for likenesses; the fifth and sixth are ladies' elegant private sitting room and private boudoir; the seventh, a spacious operating room for Ambrotypes, Photographs, &c.; the eighth, a room peculiarly fitted up for the use of the solar camera, for enlarging pictures from the smaller size to even seven feet square, if needed; the ninth, a room for the oil coloring department; and the tenth, the pastel and miniature department. In these ten departments there is everything fully requisite for the demands of the Photographic business in all its branches. With these advantages and such assistants as Mr. Hawkes will carefully select, the results must necessarily prove successful. The most unremitting attention will be shown to all who continue to patronize the old stand. Mr. Hawkes will personally attend to the sales department as usual, and will do all in his power to render each and every transaction perfectly satisfactory to his customers.

— Removal.—J. H. Whitehurst has removed to the new and extensive Gallery, 213 Baltimore street, over J. E. Bird's (formerly Hamilton Easter's) dry good emporium, where he will be pleased to see his friends and former customers.

The above Gallery was built expressly for the art, and is one of the most extensive in the country. The exhibition gallery is 30 by 50 feet deep, with a ladies' toilet and drawing-room adjoining. The sky-light gallery is of immense size, being capable of grouping seventy-five persons on a plate. In a word, nothing is wanting to make this one of the most elegantly arranged establishments for all branches of the art ever built.

— Mr. Hall's Improved Photograph As photographers have a right to expect that we will at the earliest possible moment inform them of every improvement made in the photographic Art, we take pleasure in calling their attention to the fact, that Mr. Hall, the inventor and patentee of the Hallotype, has invented a process, which he and others claim to be far superior to any other mode of treating pictures. We still claim with Mr. Hall that the Hallotype process, when properly managed, produces exceedingly beautiful results; but we were some time ago informed by him, that he was satisfied from the failures of many who first attempted it, that the majority would not make it practicable, and therefore he had never travelled one mile to sell it. We have seen certificates from Southworth & Haws and others, who unqualifiedly pronounce the process vastly superior to that of the Hallotype; and we unhesitatingly say that the results are, judging from the specimens we have seen, in every respect equal.

Mr. Hall in this method has sought for simplicity in manipulation, and assures us these pictures cannot be surpassed on that score Mr. Hall intends to give personal instruction to all who desire to purchase the process, in order that there may be no future disappointments on the part of the purchaser His terms will also be reasonable

— There is *so much* truth in the following extract that we transfer it to our columns, in hopes it may produce a good effect upon some of our readers:

The result of my observation enables me to state, as a fact that the publishers of newspapers are more poorly rewarded than any other class of men in the United States who invest an equal amount of labor, capital and thought. They are expected to do more service for less pay—to endure more sponging and "dead-heading"—to puff and defend more people without fee or hope of reward, than any other class

They credit wider and longer—get oftener defrauded—suffer more pecuniary loss—are oftener the victims of misplaced confidence, than any other class in the community. People pay the printer's bill more reluctantly than any other. It goes harder with them to expend a dollar on a valuable newspaper, than ten upon a valueless gew-gaw; yet everybody avails himself of the editor's pen and the printer's ink.

How many professional and political reputations and fortunes have been made and sustained by the friendly though unrequited pen of the author? How many embryo towns and cities have been brought into notice and puffed into prosperity by the press? How many railroads, now in successful operation, would have foundered but for the assistance of that "lever that moves the world?" In short, what branch of industry or activity has not been promoted, stimulated and defended by the press? And who has tendered it more than a miserable pittance for its mighty services? The bazaars of fashion and the haunts of appetite and dissipation are thronged with an eager crowd, bearing gold in their palms, and the commodities there needed are sold at enormous prices, though intrinsically worthless, and paid for with scrupulous punctuality: while the counting-room of the newspaper is the seat of jewing and cheapening trade, orders and pennies. It is made a point of honor to liquidate a grog-bill, but not of dishonor to repudiate a printer's account.

If our readers wish to see what we *can* accomplish in *Photographic Journalism*, they will pay up arrears immediately, and future subscriptions more promptly. We want the money.

— Mr. Wenderoth says, in answer to our request in a former number, respecting varnishes, that the negatives of the Negress were varnished with copal dissolved in Chloroform; and that after many experiments, he finds it superior to every other varnish he has used.

— The Diaphaneotype.—Mr. Faris of 363 Broadway, has a large number of exceedingly fine photographs of this style on exhibition. He has improved them very much during the last six months, both in boldness and delicacy of coloring. The objections made by many to the Hallotype, viz., semi-transparency and vagueness of outline, which we do not think just—cannot be found with these pictures; but they are just the style of picture to please those who do not like the Hallotype; and they are calculated to please all who *can tell* a well finished photograph from an ambrotype, or other photographic daub. The process, we are informed, has been reduced by Mr. Hawkins to the greatest simplicity, and as such is the case, those artists who find it difficult to obtain colorists to finish up their photographs, might make this available to their purposes instead. Mr. Hawkins of Cincinnati or Mr. Faris of this city, will furnish all necessary information in regard to the matter. It strikes us, upon examining these pictures, that almost any one with brains could learn to paint them, it appears so simple.

— G. W. Wakely.—In order to print the pictures in our present form, we use glass 11x13, and cutting an oval or any other shaped diaphragm out of yellow paper, paste it on the collodion side. If the glass is smaller than 11x13 (which is the size of our page), we use a diaphragm of wood on the outside of the glass; *i.e.*, we put the diaphragm in the pressure frame first, and fasten the glass in by means of pins at the corners. The opening must be in proportion to the glass.

— Awards by the California Mechanics' Institute for 1857: —

PREM.	PREM.
1 —Silas Sellick, Ambrotypes.	1.—R. H Vance, Plain Photographs.
2 —R. H. Vance, do	2.—G. H. Johnson, do.
3.—C. F. Hamilton, do.	

1.—Mr. Deconclois, Painted Photographs.

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